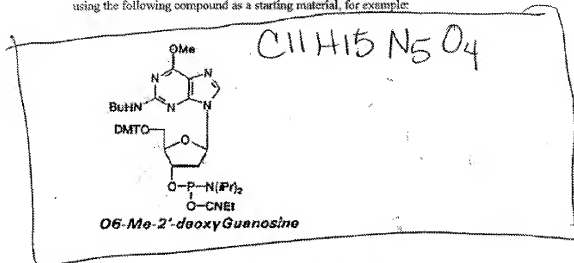


order to obtain a polynucleotide derivative that is stable in cells, a base, a sugar, and a phosphoric acid portion may chemically be modified. Examples of the aforementioned polynucleotide synthesis method may include the phosphate triester method, the phosphoramidite method, and the H-phosphonate method.

A polynucleotide wherein guanosine is methylated at position 6 may be produced using the following compound as a starting material, for example:



(Pharmaceutical composition for preventing or treating immune-mediated diseases)

As described later in test examples of the present specification, it has been confirmed that the polynucleotide of the present invention comprising a CpG motif wherein guanine is methylated can suppress the generation of interleukin when a mouse bone marrow-derived macrophage is stimulated with CpG DNA or the like, and that it can also suppress arthritis in type II collagen arthritis model mice. That is to say, the present invention provides a pharmaceutical composition comprising, as an active ingredient, a polynucleotide having a CpG motif wherein guanine is methylated. The pharmaceutical composition of the present invention has action to suppress immunity, and thus, it can be used for preventing and/or treating immune-mediated diseases. The pharmaceutical composition of the present invention can be used for preventing and/or treating autoimmune diseases such as articular rheumatism, systemic lupus erythematosus,

Serial#: 10/553,948

STRUCTURE SEARCH-PT. I

=> FILE REG

FILE 'REGISTRY' ENTERED AT 17:33:28 ON 19 APR 2010
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STRUCTURE FILE UPDATES: 18 APR 2010 HIGHEST RN 1219538-51-8
DICTIONARY FILE UPDATES: 18 APR 2010 HIGHEST RN 1219538-51-8

New CAS Information Use Policies, enter HELP USAGETERMS for details.

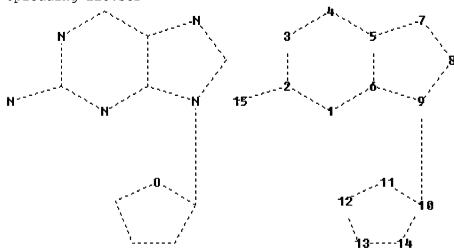
TSCA INFORMATION NOW CURRENT THROUGH January 8, 2010.

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stdoc/properties.html>

Uploading LL8.str



chain nodes :

15

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14

chain bonds :

2-15 9-10

ring bonds :

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exact/norm bonds :

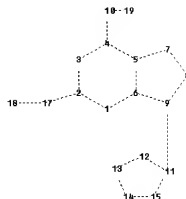
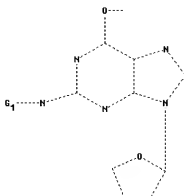
Serial#: 10/553,948

1-2 1-6 2-3 2-15 3-4 4-5 5-6 5-7 6-9 7-8 8-9 9-10 10-11 10-14 11-12
12-13 13-14

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:Atom 15:CLASS

Uploading LL15.str



chain nodes :

10 17 18 19

ring nodes :

1 2 3 4 5 6 7 8 9 11 12 13 14 15

chain bonds :

2-17 4-10 9-11 10-19 17-18

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 8-9 11-12 11-15 12-13 13-14 14-15

exact/norm bonds :

1-2 1-6 2-3 2-17 3-4 4-5 4-10 5-6 5-7 6-9 7-8 8-9 9-11 10-19 11-12

11-15 12-13 13-14 14-15 17-18

G1:n-Bu, i-Bu, s-Bu, t-Bu

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:CLASS

11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 17:CLASS 18:CLASS 19:CLASS

Serial#: 10/553,948

=> FILE HCAPLUS

FILE 'HCAPLUS' ENTERED AT 17:33:32 ON 19 APR 2010
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COPYRIGHT (C) 2010 AMERICAN CHEMICAL SOCIETY (ACS)

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FILE COVERS 1907 - 19 Apr 2010 VOL 152 ISS 17
FILE LAST UPDATED: 18 Apr 2010 (20100418/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Feb 2010
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Feb 2010

HCAplus now includes complete International Patent Classification (IPC) reclassification data for the first quarter of 2010.

CAS Information Use Policies apply and are available at:

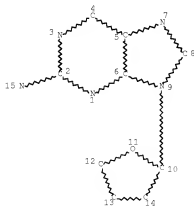
<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

'OBI' IS DEFAULT SEARCH FIELD FOR 'HCAPLUS' FILE

=> D STAT QUE L20

L8 STR

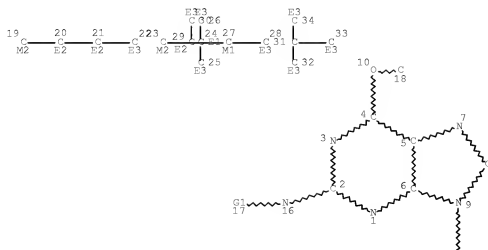


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MLEVEL	IS	CLASS	AT 15
DEFAULT	ECLEVEL	IS	LIMITED

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STEREO ATTRIBUTES: NONE
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L15      STR
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10

Serial#: 10/553,948

Page 2-A

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NSPEC	IS	C	AT	10
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DEFAULT	ECLEVEL	IS	LIMITED	

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 34

STEREO ATTRIBUTES: NONE

L17 24 SEA FILE=REGISTRY SUB=L10 SSS FUL L15
L20 8 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L17

=> D L20 IBIB ABS HITSTR 1-8

L20 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2008:61080 HCAPLUS Full-text

DOCUMENT NUMBER: 150:5994

TITLE: Studies on DNA dynamics using

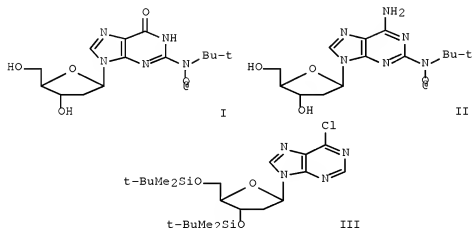
2-N-tert-butylaminoxypurines

AUTHOR(S): Aso, Mariko; Mirc, John Walter; Kurita, Manami; Koga,
Noboru; Suemune, Hiroshi

CORPORATE SOURCE: Graduate School of Pharmaceutical Sciences, Kyushu
University, Maidashi, Higashi-ku, Fukuoka, 812-8582,

Serial#: 10/553,948

SOURCE: Japan
Nucleic Acids Symposium Series (2007), (51), 163-164
CODEN: NASSCJ; ISSN: 1746-8272
URL: <http://nass.oxfordjournals.org/content/vol51/issue1/index.dtl>
PUBLISHER: Oxford University Press
DOCUMENT TYPE: Journal; (online computer file)
LANGUAGE: English
OTHER SOURCE(S): CASREACT 150:5994
GI



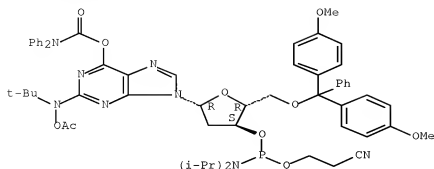
AB A symposium report. 2-N-tert-Butylaminoxypurines I and II were synthesized from 2'-deoxy-6-chloropurine derivative III by lithiation strategy. Effects of motion of I and II on EPR spectra were studied by EPR measurement in sucrose solution at various temps. The single stranded and duplexed 15-mers containing I showed the clear difference in the EPR spectra to indicate I has the potential to accurately study the dynamics of purine residues.

IT 1083322-84-2E
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of tert-butylaminoxypurines, EPR spectra, incorporation into DNA and subsequent duplex formation)

RN 1083322-84-2 HCAPLUS

CN Guanosine, N-(acetyloxy)-5'-O-[bis(4-methoxyphenyl)phenylmethyl]-2'-deoxy-N-(1,1-dimethylethyl)-, 3'-[2-cyanoethyl N,N-bis(1-methylethyl)phosphoramidite] 6-(N,N-diphenylcarbamate) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2010 ACS ON STN
 ACCESSION NUMBER: 2005:1106792 HCAPLUS Full-text
 DOCUMENT NUMBER: 143:379802
 TITLE: Antisense oligonucleotides modulating transcription factor AP-2γ (TFAP2C) expression for treatment of proliferative diseases and cancer
 INVENTOR(S): Bennett, C. Frank; Baker, Brenda F.; Dean, Nicholas M.; Monia, Brett P.; Freier, Susan M.; Karras, James G.; Zhang, Hong; Murray, Susan F.; Butler, Madeline M.; Koller, Erich; Condon, Thomas P.; Gaarde, William A.; Watt, Andrew T.; Graham, Mark J.; Wyatt, Jacqueline R.; Cowser, Lex M.; Dobie, Kenneth W.; Roach, Mark P.
 PATENT ASSIGNEE(S): USA
 SOURCE: U.S. Pat. Appl. Publ., 46 pp., Cont.-in-part of U.S. Ser. No. 33,742.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 326
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050227938	A1	20051013	US 2004-15193	20041217
AU 9726244	A	19971106	AU 1997-26244	19970624
AU 713740	B2	19991209		
US 6007995	A	19991228	US 1998-106038	19980626
US 6232463	B1	20010515	US 1998-128508	19980804
WO 2000000504	A1	20000106	WO 1999-US13763	19990617
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 20030044979	A1	20030306	US 2001-828344	20010405
US 20030083279	A1	20030501	US 2001-910185	20010718
US 20030109466	A1	20030612	US 2001-961001	20010920
US 20030100524	A1	20030529	US 2001-16149	20011101

Serial#: 10/553,948

US 20030125274	Al	20030703	US 2001-6911	20011108
US 20030105040	Al	20030605	US 2001-993731	20011113
US 20030125271	Al	20030703	US 2001-213	20011114
US 20030109467	Al	20030612	US 2001-2491	20011115
US 20030105041	Al	20030605	US 2001-1844	20011116
US 20030125272	Al	20030703	US 2001-1863	20011119
US 20030139359	Al	20030724	US 2001-6972	20011204
US 20030114400	Al	20030619	US 2001-3354	20011206
US 20030114401	Al	20030619	US 2001-3919	20011206
US 20030138952	Al	20030724	US 2001-17621	20011207
US 20030113914	Al	20030619	US 2001-6430	20011210
US 20030144224	Al	20030731	US 2001-20478	20011213
US 20030134809	Al	20030717	US 2001-24369	20011217
US 20030147863	Al	20030807	US 2001-23782	20011217
US 20030144225	Al	20030731	US 2001-33742	20011228

PRIORITY APPLN. INFO.:

US 1998-106038	A1	19980626
WO 1999-US13763	A2	19990617
US 2000-695451	B2	20001024
US 2001-828344	B2	20010405
US 2001-910185	B2	20010718
US 2001-961001	B2	20010920
US 2001-16149	A2	20011101
US 2001-6911	B2	20011108
US 2001-993731	B2	20011113
US 2001-213	B2	20011114
US 2001-2491	B2	20011115
US 2001-1844	A2	20011116
US 2001-1863	A2	20011119
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US 2001-3919	B2	20011206
US 2001-17621	B2	20011207
US 2001-6430	B2	20011210
US 2001-20478	B2	20011213
US 2001-23782	B2	20011217
US 2001-24369	B2	20011217
US 2001-33742	A2	20011228
AU 1993-38025	A3	19930225
US 1997-948151	A1	19971009

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Antisense compds., compns. and methods are provided for modulating the expression of transcription factor AP-2 γ (TFAP2C) . The compns. comprise antisense compds., particularly antisense oligonucleotides, targeted to nucleic acids encoding TFAP2C. Antisense oligonucleotides were designed targeting different regions of the TFAP2C mRNA sequence and may be modified to contain phosphorothioate linkages, 2'-O-methoxyethyl sugar moiety, and 5-methylcytosine bases. The chimeric phosphorothioate antisense oligonucleotides have 2'-MOE wings and a deoxy gap. The invention provides methods for synthesis of the antisense oligonucleotides. The antisense oligonucleotides demonstrated up to 91% inhibition of human TFAP2C expression. Methods of using these compds. for modulation of TFAP2C expression and for treatment of diseases associated with expression of TFAP2C are provided.

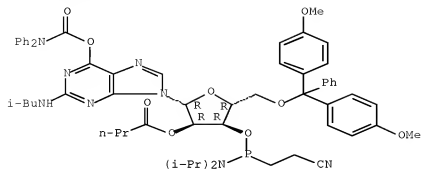
IT 1056984-88-3 1056984-89-4
 RL: PRPH (Prophetic)
 (Antisense oligonucleotides modulating transcription factor AP-2 γ (TFAP2C) expression for treatment of proliferative diseases and cancer)

RN 1056984-88-3 HCAPLUS

CN INDEX NAME NOT YET ASSIGNED

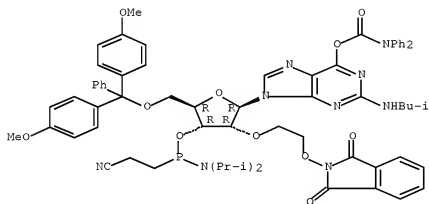
Absolute stereochemistry.

Serial#: 10/553,948



RN 1056984-89-4 HCAPLUS
CN INDEX NAME NOT YET ASSIGNED

Absolute stereochemistry.



OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD
(2 CITINGS)

L20 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2002:337381 HCAPLUS [Full-text](#)
DOCUMENT NUMBER: 137:105289
TITLE: Watson-Crick Base-Pairing Properties of Tricyclo-DNA
AUTHOR(S): Renneberg, Dorte; Leumann, Christian J.
CORPORATE SOURCE: Department of Chemistry and Biochemistry, University
of Bern, Bern, CH-3012, Switz.
SOURCE: Journal of the American Chemical Society (2002),
124(21), 5993-6002
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 137:105289

AB Tricyclo-DNA belongs to the family of conformationally restricted oligodeoxynucleotide analogs. It differs structurally from DNA by an addnl. ethylene bridge between the centers C(3') and C(5') of the nucleosides, to which a cyclopropane unit is fused for further enhancement of structural rigidity. The synthesis of the hitherto unknown tricyclodeoxynucleosides containing the bases

Serial#: 10/553,948

cytosine and guanine and of the corresponding phosphoramidite building blocks is described, as well as a structural description of a representative of an α - and a β -tricyclodeoxynucleoside by x-ray anal. Tricyclodeoxynucleoside building blocks of all four bases were used for the synthesis of fully modified mixed-base oligonucleotides. Their Watson-Crick pairing properties with complementary DNA, RNA, and with itself were investigated by UV melting curves, CD spectroscopy, and mol. modeling. Tricyclo-DNA was found to be a very stable Watson-Crick base-pairing system. A UV melting curve anal. of the decamers tcd(pcgtagacgtt) and tcd(paactgtcacg) showed increased thermal stabilities of up to $\Delta T_m/\text{mod.} = +1.2^\circ$ with complementary DNA and $+2.4^\circ$ with complementary RNA. With itself, tricyclo-DNA showed an increase in stability of $+3.1^\circ/\text{base pair}$ relative to DNA. Investigations into the thermodyn. properties of these decamers revealed an entropic stabilization and an enthalpic destabilization for the tricyclo-DNA/DNA duplexes. CD spectroscopic structural investigations indicated that tricyclo-DNA containing duplexes preferably exist in an A-conformation, a fact which is in agreement with results from mol. modeling.

IT 440115-29-7P 440115-33-3P

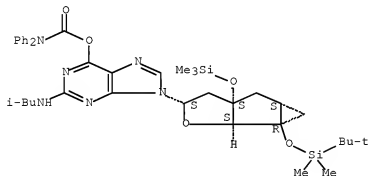
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(tricyclo-DNA forms Watson-Crick base-pairs and shows enhanced thermal stability)

RN 440115-29-7 HCAPLUS

CN Carbamic acid, diphenyl-, 9-[(2S,3aS,4aS,5aR,5bS)-5a-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]octahydro-3a-[(trimethylsilyl)oxy]cyclopropa[4,5]cyclopenta[1,2-b]furan-2-yl]-2-[(2-methylpropyl)amino]-9H-purin-6-yl ester (9CI) (CA INDEX NAME)

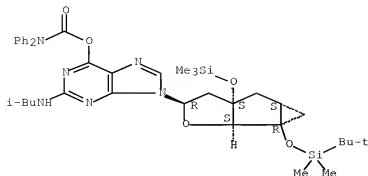
Absolute stereochemistry.



RN 440115-33-3 HCAPLUS

CN Carbamic acid, diphenyl-, 9-[(2R,3aS,4aS,5aR,5bS)-5a-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]octahydro-3a-[(trimethylsilyl)oxy]cyclopropa[4,5]cyclopenta[1,2-b]furan-2-yl]-2-[(2-methylpropyl)amino]-9H-purin-6-yl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.



OS.CITING REF COUNT: 48 THERE ARE 48 CAPLUS RECORDS THAT CITE THIS
RECORD (48 CITINGS)
REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2010 ACS ON STN
ACCESSION NUMBER: 2001:614293 HCAPLUS Full-text
DOCUMENT NUMBER: 135:190437
TITLE: Antisense oligonucleotide modulation of Her-3 gene
expression
INVENTOR(S): Bennett, C. Frank; Cowsert, Lex M.
PATENT ASSIGNEE(S): Isis Pharmaceuticals, Inc., USA
SOURCE: U.S., 49 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6277640	B1	20010821	US 2000-630706	20000731
WO 2002010409	A1	20020207	WO 2001-US22751	20010718
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2001077003	A	20020213	AU 2001-77003	20010718
PRIORITY APPLN. INFO.: US 2000-630706 A 20000731 WO 2001-US22751 W 20010718				

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Antisense compds., compns. and methods are provided for inhibiting the expression of Her-3 protein of human. The compns. comprise antisense compds., particularly antisense oligonucleotides, targeted to nucleic acids encoding Her-3. Methods of using these compds. for inhibition of Her-3 expression and for treatment of diseases associated with expression of Her-3 are provided.

IT 1099518-67-2

RL: PRPH (Prophetic)

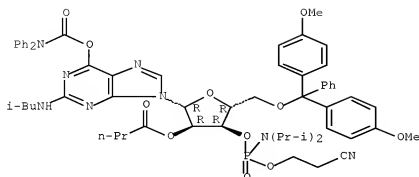
(Antisense oligonucleotide modulation of Her-3 gene expression)

Serial#: 10/553,948

RN 1098518-67-2 HCAPLUS

CN INDEX NAME NOT YET ASSIGNED

Absolute stereochemistry.



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD
(1 CITINGS)
REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2010 ACS ON STN

ACCESSION NUMBER: 2000:252686 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 133:74242

TITLE: Chemical Synthesis of Cross-Link Lesions Found in
Nitrous Acid Treated DNA: A General Method for the
Preparation of N2-Substituted 2'-Deoxyguanosines
AUTHOR(S): Harwood, Eric A.; Hopkins, Paul B.; Sigurdsson, Snorri
Th.

CORPORATE SOURCE: Department of Chemistry, University of Washington,
Seattle, WA, 98195, USA

SOURCE: Journal of Organic Chemistry (2000), 65(10), 2959-2964
CODEN: JOCEAH; ISSN: 0022-3263

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 133:74242

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Treatment of DNA with nitrous acid results in the formation of DNA-DNA cross-links. Two cross-link lesions have previously been isolated and their structures assigned based on spectroscopic data. The major lesion has been proposed to consist of two deoxyguanosine (dG) nucleosides sharing a common N2 atom I, while the structure of the minor lesion has been proposed to consist of a common nitrogen atom linking C2 of a dG nucleoside to C6 of deoxyadenosine II. The chemical synthesis of I and II, utilizing a palladium-catalyzed coupling, is described herein. It is demonstrated that the spectroscopic properties of synthetic I are identical to that of lesion I obtained from nitrous acid cross-linked DNA, thus providing a proof of its structure. Comparison of the limited spectroscopic data available for lesion II originating from nitrous acid cross-linked DNA to synthetic II supports its

Serial#: 10/553,948

structural assignment. The synthetic approach used for synthesis of I and II is shown to be a general method for the preparation of a variety of N2-substituted dG nucleosides in good yields.

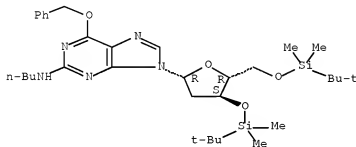
IT 278803-37-5P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of N2-substituted 2'-deoxyguanosines cross-link lesions found in nitrous acid treated DNA)

RN 278803-37-5 HCAPLUS

CN Guanosine, N-butyl-2'-deoxy-3',5'-bis-O-[(1,1-dimethylethyl)dimethylsilyl]-6-O-(phenylmethyl)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



OS.CITING REF COUNT: 42 THERE ARE 42 CAPLUS RECORDS THAT CITE THIS RECORD (42 CITINGS)
REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1996:54407 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 124:139500

ORIGINAL REFERENCE NO.: 124:25787a,25790a

TITLE: Inhibition of HIV-1 RNase H activity by nucleotide dimers and monomers

AUTHOR(S): Allen, S. J. W.; Krawczyk, S. H.; McGee, L. R.; Bischofberger, N.; Mulato, A. S.; Cherrington, J. M.

CORPORATE SOURCE: Gilead Sciences, Inc., Foster City, CA, 94404, USA

SOURCE: Antiviral Chemistry & Chemotherapy (1996), 7(1), 37-45

CODEN: ACCHEH; ISSN: 0956-3202

PUBLISHER: Blackwell

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Nucleotide dimers and monomers were shown to inhibit human immunodeficiency virus type 1 (HIV) RNase H activity. Several effective inhibitors were identified and placed into three general groups based on biochem. characterization of their inhibition. The first group (group A) inhibited HIV RNase H and the closely related feline immunodeficiency virus (FIV) RNase H, but did not inhibit less related retroviral or cellular RNases H or HIV reverse transcriptase (RT). The second group (group B) inhibited the RNase H activity of several retroviruses as well as the reverse transcriptase function of HIV RT. The third group (group C) inhibited RNases H from retroviral and cellular sources but did not inhibit HIV RT. Kinetic analyses of HIV RNase H inhibition were conducted and all three types of inhibitors exhibited a competitive mode of inhibition with regard to substrate. The small nucleotides described here represent the most potent (Ki values from 0.57 to 16 μ M) and selective inhibitors of HIV RNase H reported to date. Further structure -

Serial#: 10/553,948

function analyses of these mols. may lead to the discovery of unique, potent antiretroviral therapeutics.

IT 173291-39-9 173291-41-3 173291-44-6

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)

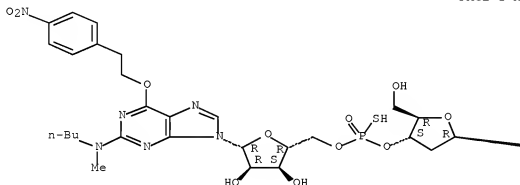
(inhibition of HIV-1 RNase H activity by nucleotide dimers and monomers)

RN 173291-39-9 HCAPLUS

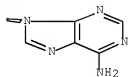
CN Guanosine, 2'-deoxy-P-thioadenylyl-(3'→5')-N-butyl-N-methyl-6-O-[2-(4-nitrophenyl)ethyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



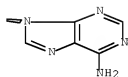
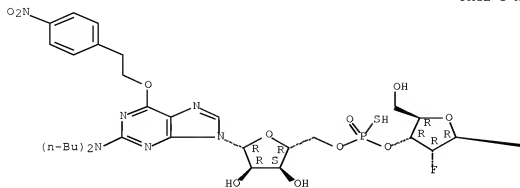
PAGE 1-B



RN 173291-41-3 HCAPLUS

CN Guanosine, 2'-deoxy-2'-fluoro-P-thioadenylyl-(3'→5')-N,N-dibutyl-6-O-[2-(4-nitrophenyl)ethyl]- (9CI) (CA INDEX NAME)

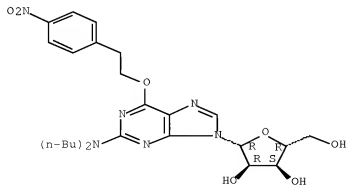
Absolute stereochemistry.



RN 173291-44-6 HCAPLUS

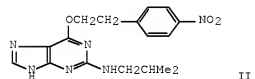
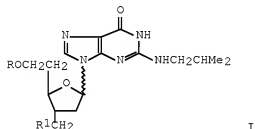
CN Guanosine, N,N-dibutyl-6-O-[2-(4-nitrophenyl)ethyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



OS.CITING REF COUNT: 11 THERE ARE 11 CAPLUS RECORDS THAT CITE THIS RECORD (11 CITINGS)

L20 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2010 ACS ON STN
 ACCESSION NUMBER: 1993:60029 HCAPLUS Full-text
 DOCUMENT NUMBER: 118:60029
 ORIGINAL REFERENCE NO.: 118:10787a,10790a
 TITLE: Efficient regioselective synthesis of guanosine analogs
 AUTHOR(S): Jenny, Thomas F.; Benner, Steven A.
 CORPORATE SOURCE: Lab. Org. Chem., ETH, Zurich, CH-8092, Switz.
 SOURCE: Tetrahedron Letters (1992), 33(44), 6619-20
 CODEN: TELEAY; ISSN: 0040-4039
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 118:60029
 GI



AB Reaction conditions are presented that allow regioselective introduction (N9 vs. N7) of guanine into sugar analogs under Vorbrueggen conditions. Using these conditions, a set of N2-protected guanosine analogs I (R = Bz, Ac; R1 = SBz, OBz, OAc) was prepared using isobutyl(4-nitrophenyl)ethylguanidine II as the nucleophile. This approach helps solve an important synthetic problem in the preparation of guanosine analogs.

IT 145370-53-2P 145370-57-6P 145370-58-7P
 145370-61-2P 145370-62-3P 145370-63-4P

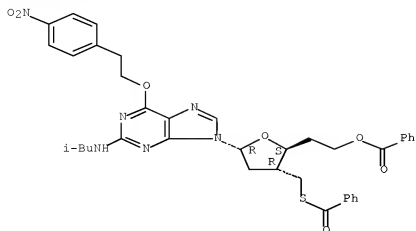
RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation and cleavage of nitrophenylethyl group of)

RN 145370-53-2 HCAPLUS

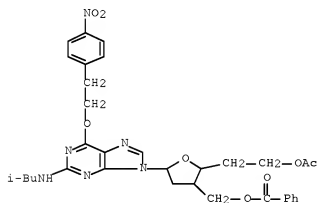
CN Benzenecarbothioic acid, S-[2-[2-(benzoyloxy)ethyl]tetrahydro-5-[2-[(2-methylpropyl)amino]-6-[2-(4-nitrophenyl)ethoxy]-9H-purin-9-yl]-3-furanyl)methyl] ester, (2 α ,3 β ,5 β)- (9CI) (CA INDEX NAME)

Relative stereochemistry.

Serial#: 10/553,948

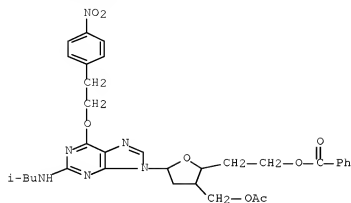


RN 145370-57-6 HCAPLUS
 CN 2-Furanethanol, 3-[(benzoyloxy)methyl]tetrahydro-5-[2-[(2-methylpropyl)amino]-6-[2-(4-nitrophenyl)ethoxy]-9H-purin-9-yl]-, acetate (ester), (2 α ,3 β ,5 β)- (9CI) (CA INDEX NAME)



RN 145370-58-7 HCAPLUS
 CN 2-Furanethanol, 3-[(acetyloxy)methyl]tetrahydro-5-[2-[(2-methylpropyl)amino]-6-[2-(4-nitrophenyl)ethoxy]-9H-purin-9-yl]-, benzoate (ester), (2 α ,3 β ,5 β)- (9CI) (CA INDEX NAME)

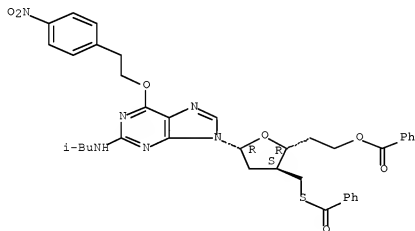
Serial#: 10/553,948



RN 145370-61-2 HCAPLUS

CN Benzenecarbothioic acid, S-[[2-[2-(benzyloxy)ethyl]tetrahydro-5-[2-[(2-methylpropyl)aminol]-6-[2-(4-nitrophenyl)ethoxy]-9H-purin-9-yl]-3-furanyl)methyl] ester, (2 α ,3 β ,5 α)- (9CI) (CA INDEX NAME)

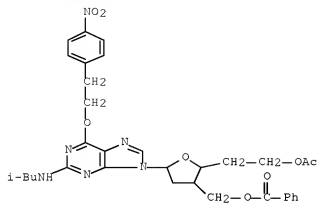
Relative stereochemistry.



RN 145370-62-3 HCAPLUS

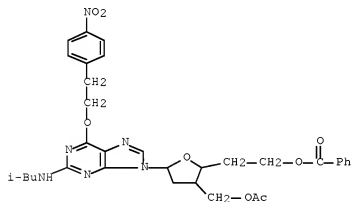
CN 2-Furanethanol, 3-[(benzyloxy)methyl]tetrahydro-5-[2-[(2-methylpropyl)aminol]-6-[2-(4-nitrophenyl)ethoxy]-9H-purin-9-yl]-, acetate (ester), (2 α ,3 β ,5 α)- (9CI) (CA INDEX NAME)

Serial#: 10/553,948



RN 145370-63-4 HCAPLUS

CN 2-Furanethanol, 3-[(acetyloxy)methyl]tetrahydro-5-[2-[(2-methylpropyl)amino]-6-[2-(4-nitrophenyl)ethoxy]-9H-purin-9-yl]-, benzoate (ester), (2 α ,3 β ,5 α)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 15 THERE ARE 15 CAPLUS RECORDS THAT CITE THIS RECORD (15 CITINGS)

L20 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1989:528695 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 111:128695

ORIGINAL REFERENCE NO.: 111:21427a,21430a

TITLE: 06-substituted-2'-deoxyguanosine-3'-phosphate adducts detected by phosphorus-32 post-labeling of styrene oxide treated DNA

AUTHOR(S): Pongracz, K.; Kaur, S.; Burlingame, A. L.; Bodell, W. J.

CORPORATE SOURCE: Brain Tumor Res. Cent., Univ. California, San Francisco, CA, 94143, USA

SOURCE: Carcinogenesis (1989), 10(6), 1009-13

CODEN: CRNGDP; ISSN: 0143-3334

DOCUMENT TYPE: Journal

LANGUAGE: English

Serial#: 10/553,948

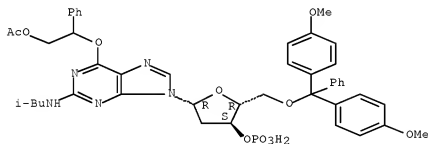
AB 32P post-labeling of DNA reacted with styrene oxide resulted in the detection of six adducts. To determine which of these corresponded to modification at the O6-position of guanine, O6-substituted styrene oxide-deoxyguanosine-3'-monophosphate derivs. were synthesized. The two synthetic isomers were purified by HPLC and the structures were confirmed by mass spectrometry and 1H NMR. 32P post-labeling and co-chromatog. with the DNA-styrene-7,8-oxide reaction products resulted in the assignment of 2 adducts as O6-(2-hydroxy-2-phenylethyl)-2'-deoxyguanosine-3',5'-bisphosphate and O6-(2-hydroxy-1-phenylethyl)-2'-deoxyguanosine-3',5'-bisphosphate.

IT 122219-71-0P 122219-72-1P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation and hydrolysis of)

RN 122219-71-0 HCAPLUS

CN 3'-Guanylic acid, 6-O-[2-(acetyloxy)-1-phenylethyl]-5'-O-[bis(4-methoxyphenyl)phenylmethyl]-2'-deoxy-N-(2-methylpropyl)- (9CI) (CA INDEX NAME)

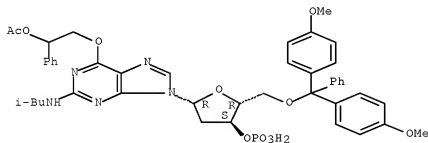
Absolute stereochemistry.



RN 122219-72-1 HCAPLUS

CN 3'-Guanylic acid, 6-O-[2-(acetyloxy)-2-phenylethyl]-5'-O-[bis(4-methoxyphenyl)phenylmethyl]-2'-deoxy-N-(2-methylpropyl)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



OS.CITING REF COUNT: 11 THERE ARE 11 CAPLUS RECORDS THAT CITE THIS RECORD (12 CITINGS)

STRUCTURE SEARCH-PT. II

=> => FILE REG

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<http://www.cas.org/support/stngen/stndoc/properties.html>

=> D STAT QUE L19

L19 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "O6-METHYL-2'-DEOXYGU
ANOSINE"/CN

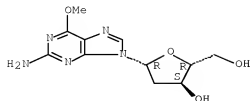
=> D IDE CAN L19

L19 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2010 ACS on STN

RN 964-21-6 REGISTRY
ED Entered STN: 16 Nov 1984
CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 9H-Purine, 2-amino-9-(2-deoxy-β-D-erythro-pentofuranosyl)-6-methoxy-
(8CI)
CN 9H-Purine, 2-amino-9-(2-deoxy-β-D-ribofuranosyl)-6-methoxy- (7CI)
OTHER NAMES:
CN 2'-Deoxy-6-methylguanosine
CN 2-Amino-6-methoxy-9-(2-deoxy-β-D-erythro-pentofuranosyl)purine
CN 6-O-Methyl-2'-deoxyguanosine
CN 6-O-Methyldeoxyguanosine
CN O6-Methyl-2'-deoxyguanosine
CN O6-Methyldeoxyguanosine
FS STEREOSEARCH
MF C11 H15 N5 O4
LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN*, BIOSIS, CA, CAPLUS, CASREACT,
CHEMCATS, CSCHM, MEDLINE, RTECS*, SPECINFO, TOXCENTER, USPAT2,
USPATFULL
(*File contains numerically searchable property data)

Absolute stereochemistry.

Serial#: 10/553,948



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

152 REFERENCES IN FILE CA (1907 TO DATE)
6 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
152 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 152:254483
REFERENCE 2: 151:306603
REFERENCE 3: 148:71348
REFERENCE 4: 147:516635
REFERENCE 5: 146:310787
REFERENCE 6: 146:222036
REFERENCE 7: 146:206572
REFERENCE 8: 146:21366
REFERENCE 9: 144:462125
REFERENCE 10: 144:446191

=> FILE HCAPLUS

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=> D STAT QUE L38

L19 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "O6-METHYL-2'-DEOXYGU
ANOSINE"/CN
L33 152 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L19
L34 33522 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON IMMUNOSTIMULATION+PFT/
CT OR IMMUNOSTIM?/BI
L35 53933 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON ANTISENS?/CT OR
(ANTI(W)SENS? OR ANTISENS?)/BI
L36 152611 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON OLIGONUCLEOTIDES+OLD,N
T,PFT/CT OR OLIGONUCLEO?/BI
L37 18678 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON (CPG? OR C(W)P(W)G?)/B
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Serial#: 10/553,948

L38 18 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L33 AND ((L34 OR L35
OR L36 OR L37))

=> D L38 IBIB ABS HITIND HITSTR 1-18

L38 ANSWER 1 OF 18 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2009:996144 HCAPLUS Full-text

DOCUMENT NUMBER: 151:306603

TITLE: Cytosine Methylation Effects on the Repair of

O6-Methylguanines within CG Dinucleotides

AUTHOR(S): Guza, Rebecca; Ma, Linan; Fang, Qingming; Pegg,

Anthony E.; Tretyakova, Natalia

CORPORATE SOURCE: Department of Medicinal Chemistry, University of

Minnesota, Minneapolis, MN, 55455, USA

SOURCE: Journal of Biological Chemistry (2009), 284(34),

22601-22610

CODEN: JBCHA3; ISSN: 0021-9258

PUBLISHER: American Society for Biochemistry and Molecular

Biology

DOCUMENT TYPE: Journal

LANGUAGE: English

AB O6-Alkyldeoxyguanine adducts induced by tobacco-specific nitrosamines are repaired by O6-alkylguanine DNA alkyltransferase (AGT), which transfers the O6-alkyl group from the damaged base to a cysteine residue within the protein. In the present study, a mass spectrometry-based approach was used to analyze the effects of cytosine methylation on the kinetics of AGT repair of O6-methyldeoxyguanosine (O6-Me-dG) adducts placed within frequently mutated 5'-CG-3' dinucleotides of the p53 tumor suppressor gene. O6-Me-dG-containing DNA duplexes were incubated with human recombinant AGT protein, followed by rapid quenching, acid hydrolysis, and isotope dilution high-pressure liquid chromatog.-electrospray ionization tandem mass spectrometry anal. of unrepaired O6-methylguanine. Second-order rate consts. were calculated in the absence or presence of the C-5 Me group at neighboring cytosine residues. The kinetics of AGT-mediated repair of O6-Me-dG were affected by neighboring 5-methylcytosine (MeC) in a sequence-dependent manner. AGT repair of O6-Me-dG adducts placed within 5'-CG-3' dinucleotides of p53 codons 245 and 248 was hindered when MeC was present in both DNA strands. In contrast, cytosine methylation within p53 codon 158 slightly increased the rate of O6-Me-dG repair by AGT. The effects of MeC located immediately 5' and in the base paired position to O6-Me-dG were not additive as revealed by expts. with hypomethylated sequences. Furthermore, differences in dealkylation rates did not correlate with AGT protein affinity for cytosine-methylated and unmethylated DNA duplexes or with the rates of AGT-mediated nucleotide flipping, suggesting that MeC influences other kinetic steps involved in repair, e.g., the rate of alkyl transfer from DNA to AGT.

CC 4-6 (Toxicology)

IT Oligonucleotides

RL: BSU (Biological study, unclassified); BIOL (Biological study)

(dinucleotides; cytosine methylation effects on repair of

methylguanines within CG dinucleotides)

IT 964-21-6, O6-Methyldeoxyguanosine 77271-19-3, O6-Alkylguanine

DNA alkyltransferase

RL: BSU (Biological study, unclassified); BIOL (Biological study)

(cytosine methylation effects on repair of methylguanines within CG

dinucleotides)

IT 964-21-6, O6-Methyldeoxyguanosine

RL: BSU (Biological study, unclassified); BIOL (Biological study)

(cytosine methylation effects on repair of methylguanines within CG

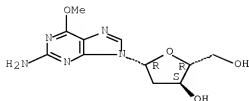
dinucleotides)

RN 964-21-6 HCAPLUS

CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Serial#: 10/553,948

Absolute stereochemistry.



REFERENCE COUNT: 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 2 OF 18 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2007:1087274 HCAPLUS [Full-text](#)
DOCUMENT NUMBER: 147:516635
TITLE: Model transition states for methane diazonium ion methylation of guanine runs in oligomeric DNA
AUTHOR(S): Ekanayake, Kaushalya S.; Lebreton, Pierre R.
CORPORATE SOURCE: Department of Chemistry, University of Illinois, Chicago, IL, 60607-7061, USA
SOURCE: Journal of Computational Chemistry (2007), 28(14), 2352-2365
CODEN: JCCHDD; ISSN: 0192-8651
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The DNA reaction pattern of the methane diazonium ion, which is the reactive intermediate formed from several carcinogenic methylating agents, was examined at N7 and O6 sites in guanine runs occurring in oligonucleotides and model oligonucleotides. D. functional B3LYP/6-31G*, and SCF 3-21G and STO-3G energies of model transition states were calculated in the gas phase and in the CPCM reaction field. For nucleotides containing two, three, and four stacked guanines with counterions in the gas phase, O6 reactivity is greater than N7 reactivity. In the reaction field, N7 reactivity is 9.0 to 9.8 times greater than O6 reactivity. For a double-stranded oligonucleotide containing two stacked guanines with counterions in the reaction field, the N7 and O6 reactivities of the 3'-guanine are 3.9 times greater than the corresponding sites in the 5'-guanine. For double-stranded oligonucleotides with three or four stacked guanines and counterions, the reactivities of the interior guanines are higher than corresponding reactivities of guanines at the ends. These reaction patterns agree with most of the available exptl. data. Activation energy decomposition anal. for gas-phase reactions in a double-stranded dinucleotide containing two stacked guanines with counterions indicates that selectivity at O6 is almost entirely due to electrostatic forces. Selectivity at N7 also has a large electrostatic interaction. However, the orbital interaction also contributes significantly to the gas-phase selectivity, accounting for 32% of the total interaction energy difference between the 3'- and 5'-guanine reactions. In aqueous solution, the relative orbital contribution to N7 selectivity is likely to be larger.

CC 6-2 (General Biochemistry)

IT DNA

Oligodeoxyribonucleotides

RL: BSU (Biological study, unclassified); RCT (Reactant); BIOL (Biological study); RACT (Reactant or reagent)

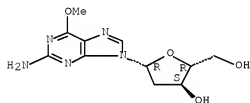
(model transition states for methane diazonium ion methylation of guanine runs in oligomeric DNA)

IT 964-21-6, O6-Methyl 2'-deoxyguanosine 26718-69-4, N7-Methyl

Serial#: 10/553,948

2'-deoxyguanosine
RL: BSU (Biological study, unclassified); FMU (Formation, unclassified);
BIOL (Biological study); FORM (Formation, nonpreparative)
(model transition states for methane diazonium ion methylation of
guanine runs in oligomeric DNA)
IT 964-21-6, O6-Methyl 2'-deoxyguanosine
RL: BSU (Biological study, unclassified); FMU (Formation, unclassified);
BIOL (Biological study); FORM (Formation, nonpreparative)
(model transition states for methane diazonium ion methylation of
guanine runs in oligomeric DNA)
RN 964-21-6 HCAPLUS
CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 63 THERE ARE 63 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 3 OF 18 HCAPLUS COPYRIGHT 2010 ACS ON STN
ACCESSION NUMBER: 2006:1349025 HCAPLUS Full-text
DOCUMENT NUMBER: 146:222036
TITLE: Development of a novel site-specific mutagenesis assay
using MALDI-ToF MS (SSMA-MS)
AUTHOR(S): McLuckie, Keith I. E.; Lamb, John H.; Sandhu,
Jatinderpal K.; Pearson, Helen L.; Brown, Karen;
Farmer, Peter B.; Jones, Donald J. L.
CORPORATE SOURCE: The Biocentre, Cancer Biomarkers and Prevention Group,
University of Leicester, Leicester, LE1 7RH, UK
SOURCE: Nucleic Acids Research (2006), 34(22), e150/1-e150/12
CODEN: NARHAD; ISSN: 0305-1048
PUBLISHER: Oxford University Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB We have developed and validated a novel site-specific mutagenesis assay, termed SSMA-MS, which incorporates MALDI-ToF mass spectrometry (MALDI-MS) anal. as a means of determining the mutations induced by a single DNA adduct. The assay involves ligating an adducted deoxyligonucleotide into supF containing pSP189 plasmid. The plasmid is transfected into human Ad293 kidney cells allowing replication and therefore repair or a mutagenic event to occur. Escherichia coli indicator bacteria are transformed with recovered plasmid and plasmids containing the insert are identified colorimetrically, as they behave as frameshift mutations. The plasmid is then amplified and digested using a restriction cocktail of MboII and MnlI to yield 12 bp deoxyligonucleotides, which are characterized by MALDI-MS. MALDI-MS takes advantage of the difference in mol. weight between bases to identify any induced mutations. This anal. method therefore provides qual. and quant. information regarding the type and frequency of mutations induced. This assay was developed and validated using an O6-methyl-2'-deoxyguanosine adduct, which induced the expected GC AT substitutions, when replicated in human or bacterial cells. This approach can be

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applied to the study of any DNA adduct in any biol. relevant gene sequence (e.g. p53) in human cells and would be particularly amenable to high-throughput anal.

CC 3-1 (Biochemical Genetics)

IT Oligonucleotides

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses) (adduct-containing; development of novel site-specific mutagenesis assay using MALDI-ToF MS (SSMA-MS))

IT 964-21-6, 06-Methyl-2'-deoxyguanosine

RL: BSU (Biological study, unclassified); BIOL (Biological study) (mutagenesis induced by; development of novel site-specific mutagenesis assay using MALDI-ToF MS (SSMA-MS))

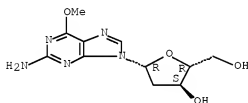
IT 964-21-6, 06-Methyl-2'-deoxyguanosine

RL: BSU (Biological study, unclassified); BIOL (Biological study) (mutagenesis induced by; development of novel site-specific mutagenesis assay using MALDI-ToF MS (SSMA-MS))

RN 964-21-6 HCAPLUS

CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 4 OF 18 HCAPLUS COPYRIGHT 2010 ACS ON STN

ACCESSION NUMBER: 2006:412032 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 144:446191

TITLE: Nucleic acid analysis by uses of mass labeled identification oligonucleotides and their capture for subsequent identification by mass spectrometry

INVENTOR(S): Grosveld, Franklin; Philipsen, Jacobus

PATENT ASSIGNEE(S): Erasmus University Medical Center, Neth.

SOURCE: PCT Int. Appl., 53 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006046144	A2	20060504	WO 2005-IB3513	20051026
WO 2006046144	A3	20061123		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN,

Serial#: 10/553,948

YU, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,
CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.:

GB 2004-23873

A 20041027

- AB Described is a method for analyzing nucleic acid isolated from or in a biol. sample through the use of mass labeled identification oligonucleotides and their capture for subsequent identification by mass spectrometry. The method comprises the steps of hybridizing to the nucleic acid(s) under desired conditions in solution containing a repertoire of identification oligonucleotides, each of defined and different mass; capturing the nucleic acid onto a solid phase and washing off those members of the repertoire which are not hybridized to the nucleic acid with a desired affinity; and eluting the repertoire members which remain hybridized to nucleic acid after the washing step and analyzing said members to resolve their mass and/or quantity. The invention is of particular value for the simultaneous resolution of complex mixts. of oligonucleotides of similar or identical mass but different nucleotide sequence.
- IC ICM C12N
- CC 3-1 (Biochemical Genetics)
Section cross-reference(s): 9
- ST target nucleic acid hybridization mass labeled identification
oligonucleotide; mass spectrometry identification
oligonucleotide nucleic acid hybridization
- IT Mass spectrometry
(Fourier-transform; nucleic acid anal. by uses of mass labeled
identification oligonucleotides and their capture for
subsequent identification by mass spectrometry)
- IT Time-of-flight mass spectrometry
(matrix-assisted photodesorption-photoionization; nucleic acid anal. by
uses of mass labeled identification oligonucleotides and
their capture for subsequent identification by mass spectrometry)
- IT Oligonucleotides
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST
(Analytical study); BIOL (Biological study); USES (Uses)
(methylphosphonate-linked; nucleic acid anal. by uses of mass labeled
identification oligonucleotides and their capture for
subsequent identification by mass spectrometry)
- IT Mass spectrometry
Nucleic acid hybridization
(nucleic acid anal. by uses of mass labeled identification
oligonucleotides and their capture for subsequent
identification by mass spectrometry)
- IT Nucleoside analogs
Oligonucleotides
Peptide nucleic acids
Phosphorothioate oligodeoxyribonucleotides
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST
(Analytical study); BIOL (Biological study); USES (Uses)
(nucleic acid anal. by uses of mass labeled identification
oligonucleotides and their capture for subsequent
identification by mass spectrometry)
- IT Amines, biological studies
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST
(Analytical study); BIOL (Biological study); USES (Uses)
(oligonucleotide terminus modified with; nucleic acid anal.
by uses of mass labeled identification oligonucleotides and
their capture for subsequent identification by mass spectrometry)
- IT Laser ionization mass spectrometry
(photodesorption, matrix-assisted, time-of-flight; nucleic acid anal.

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by uses of mass labeled identification oligonucleotides and their capture for subsequent identification by mass spectrometry)

IT Laser desorption mass spectrometry (photoionization, matrix-assisted, time-of-flight; nucleic acid anal. by uses of mass labeled identification oligonucleotides and their capture for subsequent identification by mass spectrometry)

IT Nucleic acids
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(target; nucleic acid anal. by uses of mass labeled identification oligonucleotides and their capture for subsequent identification by mass spectrometry)

IT 57-88-5D, Cholesterol, oligonucleotide terminus modified with 66-97-7D, Psoralen, oligonucleotide terminus modified with 260-94-6D, Acridine, oligonucleotide terminus modified with 1672-46-4D, Digoxigenin, oligonucleotide terminus modified with 2321-07-5D, Fluorescein, oligonucleotide terminus modified with 3301-79-9D, 6-Fam, oligonucleotide terminus modified with 6268-49-1D, Dabcyl, oligonucleotide terminus modified with 13558-31-1D, oligonucleotide terminus modified with 50402-56-7D, Edans, oligonucleotide terminus modified with 82354-19-6D, Texas red, oligonucleotide terminus modified with 82855-40-1D, Joe, oligonucleotide terminus modified with 120718-39-0D, ROX, oligonucleotide terminus modified with 120718-52-7D, Tamra, oligonucleotide terminus modified with 138039-55-1, Cascade blue 146368-14-1D, Cy5, oligonucleotide terminus modified with 146368-16-3D, Cy3, oligonucleotide terminus modified with 155911-16-3D, Hex, oligonucleotide terminus modified with 192230-82-3D, Tet, oligonucleotide terminus modified with 885323-53-5D, oligonucleotide terminus modified with

RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(nucleic acid anal. by uses of mass labeled identification oligonucleotides and their capture for subsequent identification by mass spectrometry)

IT 139868-33-0, GenBank X62302 140041-65-2, GenBank X03917 140337-44-6, GenBank M60456 140530-23-0, GenBank X13752 140758-67-4, GenBank J00413 194380-70-6, GenBank AF006492 204884-28-6, GenBank AF047339 224358-99-0, GenBank AF028722 225636-20-4, GenBank AB020013 225673-93-8, GenBank AF134811 322038-96-0, GenBank AK002286 322290-53-9, GenBank AK012501 336087-75-3, GenBank AF364516 382737-36-2, GenBank X01997 384408-50-8, GenBank V00714

RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(nucleic acid anal. by uses of mass labeled identification oligonucleotides and their capture for subsequent identification by mass spectrometry)

IT 50-89-5D, Thymidine, biotin conjugates, biological studies 50-91-9 54-42-2, 5-Iodo-2'-deoxyuridine 59-14-3, 5-Bromo-2'-deoxyuridine 73-03-0, Cordycepin 452-06-2, 2-Aminopurine 611-53-0, 5-Iodo-2'-deoxycytidine 838-07-3, 5-Methyl-2'-deoxycytidine 890-38-0, 2'-Deoxyinosine 951-78-0, 2'-Deoxyuridine 964-21-6 1022-79-3, 5-Bromo-2'-deoxycytidine 2002-35-9, N6-Methyl-2'-deoxyadenosine 3881-21-8, 2'-O-Methylinosine 4097-22-7, 2',3'-Dideoxyadenosine 4546-68-3, 2'-Deoxynebularine 4546-70-7 5930-94-9, 3-Nitropyrrole 6146-52-7, 5-Nitroindole 7236-57-9, 4-Thiothymidine 7481-89-2, 2',3'-Dideoxycytidine 10356-76-0, 5-Fluoro-2'-deoxycytidine 13389-03-2 14985-44-5, 8-Bromo-2'-deoxyadenosine 16096-32-5, 4-Methyl-indole 28585-51-5 50591-13-4 60129-59-1, 7-Deaza-2'-deoxyadenosine 62471-63-0,

Serial#: 10/553,948

8-Oxo-2'-deoxyadenosine 68045-42-1 86392-75-8,
7-Deaza-2'-deoxyguanosine 88847-89-6, 8-Oxo-dG 95119-96-3
109389-24-4 109389-25-5 113886-70-7 114485-36-8 126128-42-5, DP
179817-95-9 179817-96-0

RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST
(Analytical study); BIOL (Biological study); USES (Uses)

(oligonucleotides containing; nucleic acid anal. by uses of mass
labeled identification oligonucleotides and their capture for
subsequent identification by mass spectrometry)

IT 885709-51-3 885709-52-4 885709-53-5 885709-54-6 885709-55-7
885709-56-8 885709-57-9 885709-58-0 885709-59-1 885709-60-4
885709-61-5 885709-62-6 885709-63-7 885709-64-8 885709-65-9
885709-66-0 885709-67-1 885709-68-2 885709-69-3 885709-70-6
885709-71-7 885709-72-8 885709-73-9 885709-74-0 885709-75-1
885709-76-2 885709-77-3 885709-78-4 885709-79-5 885709-80-8
885709-81-9 885709-82-0 885709-83-1 885709-84-2 885709-85-3
885709-86-4 885709-87-5 885709-88-6 885709-89-7 885709-90-0
885709-91-1 885709-92-2 885709-93-3 885709-94-4 885709-95-5
885709-96-6 885709-97-7 885709-98-8 885709-99-9 885710-00-9
885710-01-0 885710-02-1 885710-03-2 885710-04-3 885710-05-4
885710-06-5 885710-07-6 885710-08-7 885710-09-8 885710-10-1
885710-11-2 885710-12-3 885710-13-4 885710-14-5 885710-15-6
885710-16-7 885710-17-8 885710-18-9

RL: PRP (Properties)

(unclaimed sequence; nucleic acid anal. by uses of mass labeled
identification oligonucleotides and their capture for
subsequent identification by mass spectrometry)

IT 964-21-6

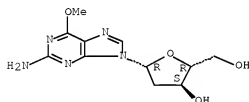
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST
(Analytical study); BIOL (Biological study); USES (Uses)

(oligonucleotides containing; nucleic acid anal. by uses of mass
labeled identification oligonucleotides and their capture for
subsequent identification by mass spectrometry)

RN 964-21-6 HCAPLUS

CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 5 OF 18 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2005:427312 HCAPLUS [Full-text](#)
DOCUMENT NUMBER: 143:149197
TITLE: Separation of modified 2'-deoxyoligonucleotides using
ion-pairing reversed-phase HPLC
AUTHOR(S): Gelhaus, Stacy L.; LaCourse, William R.
CORPORATE SOURCE: Department of Chemistry and Biochemistry, University
of Maryland, Baltimore, MD, 21250, USA

Serial#: 10/553,948

SOURCE: Journal of Chromatography, B: Analytical Technologies
in the Biomedical and Life Sciences (2005), 820(2),
157-163
CODEN: JCBAAI; ISSN: 1570-0232
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A group of 18-mers of the same base sequence, but with differing alkyl modifications is used to investigate effects of these modifications on retention of oligonucleotides using ion-pairing reversed-phase liquid chromatog. (IP-RPLC). It is shown that IP-RPLC is able to distinguish between oligonucleotides differing only by a single alkyl group. The identity of the nucleobase and position and length of the alkyl adduct affect retention of the oligonucleotides. These separation phenomena result from changes in charge and hydrophobicity upon alkylation. As demonstrated in this paper; chromatog. selectivity, unique to IP-RPLC, greatly facilitates the purification process of modified oligonucleotides.

CC 9-3 (Biochemical Methods)

IT Section cross-reference(s): 3, 33

IT Oligodeoxyribonucleotides
RL: ANT (Analyte); BSU (Biological study, unclassified); PRP (Properties);
PUR (Purification or recovery); ANST (Analytical study); BIOL (Biological study); PREP (Preparation)
(separation of modified 2'-deoxyoligonucleotides using ion-pairing reversed-phase HPLC)

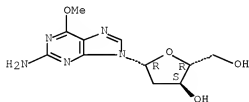
IT 838-07-3D, oligonucleotide derivative 964-21-6D,
oligonucleotide derivative 2002-35-9D, oligonucleotide
derivative 50591-13-4D, oligonucleotide derivative 50704-46-6D,
oligonucleotide derivative 101803-03-6D, oligonucleotide
derivative 283600-46-4D, oligonucleotide derivative
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL
(Biological study)
(separation of modified 2'-deoxyoligonucleotides using ion-pairing reversed-phase HPLC)

IT 964-21-6D, oligonucleotide derivative
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL
(Biological study)
(separation of modified 2'-deoxyoligonucleotides using ion-pairing reversed-phase HPLC)

RN 964-21-6 HCAPLUS

CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 6 OF 18 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2002:832909 HCAPLUS Full-text
DOCUMENT NUMBER: 137:348832

Serial#: 10/553,948

TITLE: Mass spectrometric analysis of nucleic acids using oligonucleotides modified with mass labels

INVENTOR(S): Grosveld, Frank

PATENT ASSIGNEE(S): Erasmus Universiteit Rotterdam, Neth.

SOURCE: PCT Int. Appl., 45 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002086051	A2	20021031	WO 2002-IB2298	20020424
WO 2002086051	A3	20031120		
<p>W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW</p> <p>RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG</p>				
CA 2445248	A1	20021031	CA 2002-2445248	20020424
AU 2002309185	A1	20021105	AU 2002-309185	20020424
EP 1385932	A2	20040204	EP 2002-735871	20020424
<p>R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR</p>				
JP 2005500824	T	20050113	JP 2002-583567	20020424
BR 2002009205	A	20051213	BR 2002-9205	20020424
US 20040137570	A1	20040715	US 2003-693308	20031024
PRIORITY APPLN. INFO.:				
			GB 2001-10030	A 20010424
			GB 2001-10029	A 20010424
			WO 2002-IB2298	W 20020424

AB The present invention relates to nucleic acid anal. and in particular, but not exclusively, computational aspects of nucleic acid anal. The present invention provides a method for constructing a set, or repertoire, of sequence-specific binding mols. which are differentiable by mass. According to an aspect of the present invention, there is provided a method for constructing a repertoire of oligomers differentiable by mass, comprising: (a) providing a heterogeneous pool of monomers, wherein said monomers are modified by addition of one or more of a selection of mass labels; (b) optionally, providing a heterogeneous pool of unlabeled monomers; (c) determining the monomer sequences of the oligomers to be represented in the repertoire and calculating the number and nature of the mass labels to be incorporated into each monomer such that each oligomer differs in mass; and (d) assembling a plurality of labeled monomers and, optionally, one or more unlabeled monomers, to form the oligomers. The repertoire is constructed so that each oligomer with a different sequence has a different mass characteristic. The members of the repertoire which hybridized to the nucleic acid can then be identified by a mass anal. In another aspect, the invention provides a method for analyzing nucleic acid in a biol. sample, comprising the steps of: (a) immobilizing the nucleic acid (s) in the sample onto a solid support; (b) hybridizing to the nucleic acid (s) at a desired stringency a repertoire of oligonucleotides, and eluting those members of the repertoire which do not hybridize at the desired stringency; (c) eluting the repertoire members hybridized in step (b) and analyzing said members to resolve their mass. A powerful technique to detect and quantify nucleic acid sequences based on the identification of oligomers according to their mass is provided. The technique does not suffer from the disadvantages associated with 32P-labeling or forming biotinylated or fluorescein-conjugated probes and when

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coupled with a mass spectrometric anal. gives rapid, precise and unambiguous results.

IC ICM C12G

CC 9-16 (Biochemical Methods)

Section cross-reference(s): 3

ST nucleic acid analysis oligonucleotide mass spectrometry label

IT Oligonucleotides

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(2'-O-Me, methylphosphonate-linked; mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT RNA

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(2'-O-Me; mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT DNA

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(abasic site-containing, oligonucleotide base modification with; mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT Computer program

Computers

Immobilization, molecular or cellular

Mass spectrometry

Nucleic acid hybridization

Sequence homology analysis

Time-of-flight mass spectrometry
(mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT DNA

Nucleic acids

RNA

mRNA

RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT Phosphorothioate oligonucleotides

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT Oligonucleotides

Oligopeptides

Peptide nucleic acids

Probes (nucleic acid)

RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT Amines, uses

Thiols, uses

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(oligonucleotide modification with; mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT Phosphates, uses

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(phosphorothioates, oligonucleotide backbone modification with; mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT Laser ionization mass spectrometry

(photodesorption, matrix-assisted; mass spectrometric anal. of nucleic

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acids using oligonucleotides modified with mass labels)

IT Laser desorption mass spectrometry
(photoionization, matrix-assisted; mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT DNA
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(rdDNA, oligonucleotide modification with; mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT 138039-55-1
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Cascade Blue, oligonucleotide modification with; mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT 146368-16-3, Cy3
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Cy3, oligonucleotide modification with; mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT 146368-14-1, Cy5
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Cy5, oligonucleotide modification with; mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT 155911-16-3, HEX
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(HEX, oligonucleotide modification with; mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT 120718-52-7, TAMRA
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT 993-13-5
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(oligonucleotide backbone modification with; mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT 50-89-5D, DT, conjugates with biotin 50-91-9 54-42-2 59-14-3
73-03-0, Cordycepin 452-06-2, 2-Aminopurine 611-53-0 838-07-3
890-38-0 951-78-0 964-21-6 1022-79-3 2002-35-9
3881-21-8 4097-22-7 4546-68-3, 2'-Deoxynebularine 5930-94-9,
3-Nitropyrrole 6146-52-7, 5-Nitroindole 7236-57-9 7481-89-2
10356-76-0 13389-03-2 14985-44-5 16096-32-5, 4-Methylindole
28585-51-5 50591-13-4 60129-59-1 62471-63-0 86392-75-8
88847-89-6, 8-Oxo dG 109389-24-4 109389-25-5 113886-70-7
114485-36-8 126128-42-5 179817-95-9 179817-96-0
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(oligonucleotide base modification with; mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

IT 51-28-5, Dinitrophenol, uses 56-81-5, Glycerol, uses 57-88-5,
Cholesterol, uses 58-85-5D, Biotin, derivs. 66-97-7, Psoralen
81-88-9 260-94-6, Acridine 1672-46-4, Digoxigenin 2321-07-5,
Fluorescein 3301-79-9, 6-FAM 6268-49-1, Dabcyl 50402-56-7, Edans
82354-19-6, Texas Red 82855-40-1, JOE 120718-39-0, ROX 192230-82-3,
TET
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(oligonucleotide modification with; mass spectrometric anal. of nucleic acids using oligonucleotides modified with mass labels)

Serial#: 10/553,948

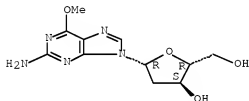
IT 4546-70-7
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(oligonucleotides containing; mass spectrometric anal. of nucleic
acids using oligonucleotides modified with mass labels)

IT 123039-46-3 474235-91-1 474235-92-2 474235-93-3 474349-62-7
474349-63-8
RL: PRP (Properties)
(unclaimed sequence; mass spectrometric anal. of nucleic acids using
oligonucleotides modified with mass labels)

IT 964-21-6
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(oligonucleotide base modification with; mass spectrometric
anal. of nucleic acids using oligonucleotides modified with
mass labels)

RN 964-21-6 HCAPLUS
CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Absolute stereochemistry.



OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD
(2 CITINGS)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 7 OF 18 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2000:559575 HCAPLUS Full-text
DOCUMENT NUMBER: 133:335422
TITLE: Synthesis and Characterization of DNA Containing
O6-Carboxymethylguanine
AUTHOR(S): Xu, Y.-Z.
CORPORATE SOURCE: Department of Biochemistry and Molecular Biology,
University College London, London, WC1E 6BT, UK
SOURCE: Tetrahedron (2000), 56(33), 6075-6081
CODEN: TETRAB; ISSN: 0040-4020
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB O6-Carboxymethylguanine was formed in DNA treated with N-nitrosoglycocholic acid and
believed to be implicated in human gastrointestinal and colorectal tumor. An
efficient method is presented here for synthesis of oligodeoxynucleotides containing
O6-carboxymethylguanine at pre-determined positions. The synthetic protocol also
allows for production of oligomers containing O6-aminocarbonylmethylguanine. These
guanine-modified oligomers have been fully characterized and could provide a useful
tool for biol. studies of these modified bases.

CC 33-10 (Carbohydrates)

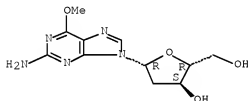
IT Oligodeoxyribonucleotides

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(guanine-modified; synthesis and characterization of DNA containing

Serial#: 10/553,948

O6-carboxymethylguanine)
 IT 964-21-6P 120022-79-9P 189457-82-7P 189457-83-8P
 302584-91-4P 302584-93-6P 302584-95-8P 302584-97-0P 302585-01-9P
 302585-05-3P 302585-07-5P 302585-13-3P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (synthesis and characterization of DNA containing O6-carboxymethylguanine)
 IT 964-21-6P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (synthesis and characterization of DNA containing O6-carboxymethylguanine)
 RN 964-21-6 HCAPLUS
 CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Absolute stereochemistry.



OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD
 (4 CITINGS)
 REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 8 OF 18 HCAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 1998:479638 HCAPLUS [Full-text](#)
 DOCUMENT NUMBER: 129:91400
 ORIGINAL REFERENCE NO.: 129:18739a,18742a
 TITLE: Method for polynucleotide amplification using modified
 oligonucleotide primers having a
 non-extendable 3'-end
 INVENTOR(S): Ullman, Edwin F.; Lishanski, Alla; Kurn, Nurith
 PATENT ASSIGNEE(S): Dade Behring Marburg G.m.b.H., Germany
 SOURCE: PCT Int. Appl., 85 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9828443	A1	19980702	WO 1997-US23706	19971217
W: CA, JP				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 6482590	B1	20021119	US 1997-965492	19971106
CA 2246225	A1	19980702	CA 1997-2246225	19971217
EP 904412	A1	19990331	EP 1997-952592	19971217
EP 904412	B1	20011010		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
AT 206766	T	20011015	AT 1997-952592	19971217

Serial#: 10/553,948

JP 2002503089	T	20020129	JP 1998-529035	19971217
ES 2165634	T3	20020316	ES 1997-952592	19971217
PT 904412	E	20020429	PT 1997-952592	19971217
PRIORITY APPLN. INFO.:			US 1996-33137P	P 19961220
			US 1997-965492	A 19971106
			US 1996-33137	P 19961220
			WO 1997-US23706	W 19971217

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The present invention relates to a method for selectively extending an oligonucleotide primer along a specific target polynucleotide sequence in a mixture of polynucleotides. The method comprises providing the modified oligonucleotide having a 3'-end that is not extendable along any polynucleotide and extending the oligonucleotide primer selectively along the specific target polynucleotide sequence by controlling the degradation of the 3'-end of the modified oligonucleotide. In this way extension along polynucleotides other than the specific target polynucleotide sequence is substantially reduced or avoided. In another aspect the invention is an improvement in a method for amplifying a target polynucleotide sequence. The improvement comprises deriving the oligonucleotide primer from a modified oligonucleotide having a portion that hybridizes to the target polynucleotide sequence except for the 3'-end thereof, which has at least one nucleotide analog that is incapable of hybridizing to a polynucleotide. Thus the use of 3'-etheno-dA-modified oligonucleotides both as inner primers in nested PCR greatly reduced the number of spurious amplification products as determined by gel electrophoresis. Kits for carrying out the above methods are also disclosed.

IC ICM C12Q001-68

CC 3-1 (Biochemical Genetics)

ST polynucleotide amplification modified oligonucleotide primer;
DNA amplification modified oligonucleotide primer; PCR modified oligonucleotide primer

IT Nucleic acid amplification (method)
(DNA; method for polynucleotide amplification using modified oligonucleotide primers having a non-extendable 3'-end)

IT Nucleic acid amplification (method)
PCR (polymerase chain reaction)
(method for polynucleotide amplification using modified oligonucleotide primers having a non-extendable 3'-end)

IT Primers (nucleic acid)
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(method for polynucleotide amplification using modified oligonucleotide primers having a non-extendable 3'-end)

IT PCR (polymerase chain reaction)
(nested; method for polynucleotide amplification using modified oligonucleotide primers having a non-extendable 3'-end)

IT 364-21-6D, 6-O-Methyl-2'-deoxyguanosine, oligonucleotide 3'-end modified 50591-13-4D, oligonucleotide 3'-end modified 68498-25-9D, Ethenodeoxyadenosine, oligonucleotide 3'-end modified 79393-91-2, 3',5'-Exonuclease
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(method for polynucleotide amplification using modified oligonucleotide primers having a non-extendable 3'-end)

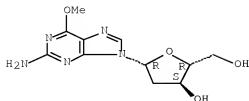
IT 364-21-6D, 6-O-Methyl-2'-deoxyguanosine, oligonucleotide 3'-end modified
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(method for polynucleotide amplification using modified oligonucleotide primers having a non-extendable 3'-end)

RN 964-21-6 HCAPLUS

CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Serial#: 10/553,948

Absolute stereochemistry.



OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD (12 CITINGS)
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 9 OF 18 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1997:190264 HCAPLUS Full-text

DOCUMENT NUMBER: 126:293010

ORIGINAL REFERENCE NO.: 126:56737a,56740a

TITLE: The mechanism of decomposition of N-methyl-N-nitrosoarea (MNU) in water and a study of its reactions with 2'-deoxyguanosine, 2'-deoxyguanosine 5'-monophosphate and d(GTGCAC)
AUTHOR(S): Golding, Bernard T.; Bleasdale, Christine; McGinnis, Joseph; Mueller, Susanna; Rees, Hue Thu; Rees, Nicholas H.; Farmer, Peter B.; Watson, William P.
CORPORATE SOURCE: Dep. Chem., Univ. Newcastle upon Tyne, Newcastle upon Tyne, NE1 7RU, UK
SOURCE: Tetrahedron (1997), 53(11), 4063-4082
CODEN: TETRAB; ISSN: 0040-4020
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 126:293010

AB The carcinogenicity of N-methyl-N-nitrosoarea (MNU) arises from its ability to methylate DNA. This occurs in an aqueous environment and therefore an appreciation of the mode of decomposition of MNU in water is essential to understanding the mechanism of DNA methylation and its base sequence dependence. The kinetics of MNU hydrolyses are shown to be first order in MNU with a steep rise in rate above pH 8. Using NMR for in situ monitoring of reaction intermediates and products from hydrolyses of [13CO]MNU, [15NH2]MNU and [13CH3]MNU, it is proved that base-induced hydrolysis of MNU is initiated by deprotonation at the carbamoyl group. The critical reactive species are shown to be the methylidiazonium ion (Me-N2+) and cyanate (NCO-). Investigations of reactions of [13CH3]MNU with 2'-deoxyguanosine (dGuo) and 2'-deoxyguanosine 5'-monophosphate (dGuo-5P) showed that: (a) the site of methylation of dGuo is highly pH-dependent (relatively more N-1 and O6-methylation compared to N-7 occurs at higher pH); (b) the principal site of methylation of dGuo-5P by MNU is at phosphate; (c) incorporation of deuterium into Me groups occurs in D2O at higher pH. Methylation of the oligonucleotide d(GT[15N]GCAC) by MNU in D2O showed partial deuteration of the N777-Me groups of the guanines, while methylation by MNU in water indicated no significant preference for either guanine with respect to N7-methylation.

CC 22-8 (Physical Organic Chemistry)

Section cross-reference(s): 4, 6, 14, 26, 33

ST safety decomn mechanism aq methylnitrosoarea; monophosphate
deoxyguanosine aq methylnitrosoarea; deoxyguanosine aq methylnitrosoarea;
oligonucleotide aq methylnitrosoarea

Serial#: 10/553,948

IT Nucleosides, reactions

Oligonucleotides

RL: BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)

(decomposition mechanism of aqueous N-methyl-N-nitrosourea (MNU) and MNU's reactions with 2'-deoxyguanosine, 2'-deoxyguanosine 5'-monophosphate or d(GTGCAC))

IT 624-83-9P, Methyl isocyanate 964-21-6P 5132-79-6P

28074-91-1P

RL: PNU (Preparation, unclassified); PREP (Preparation)

(decomposition mechanism of aqueous N-methyl-N-nitrosourea (MNU) and MNU's reactions with 2'-deoxyguanosine, 2'-deoxyguanosine 5'-monophosphate or d(GTGCAC))

IT 964-21-6P

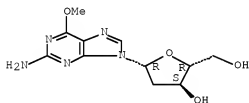
RL: PNU (Preparation, unclassified); PREP (Preparation)

(decomposition mechanism of aqueous N-methyl-N-nitrosourea (MNU) and MNU's reactions with 2'-deoxyguanosine, 2'-deoxyguanosine 5'-monophosphate or d(GTGCAC))

RN 964-21-6 HCAPLUS

CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Absolute stereochemistry.



OS.CITING REF COUNT: 17 THERE ARE 17 CAPLUS RECORDS THAT CITE THIS RECORD (17 CITINGS)

REFERENCE COUNT: 60 THERE ARE 60 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 10 OF 18 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1996:663725 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 126:72170

ORIGINAL REFERENCE NO.: 126:13909a,13912a

TITLE: MutS interaction with mismatch and alkylated base containing DNA molecules detected by optical biosensor

AUTHOR(S): Babic, Ivan; Andrew, Susan E.; Jirik, Frank R.

CORPORATE SOURCE: Biomedical Research Center and Department of Medicine, 2222 Health Sciences Mall, University of British Columbia, Vancouver, B.C., Can.

SOURCE: Mutation Research, Fundamental and Molecular Mechanisms of Mutagenesis (1996), 372(1), 87-96

CODEN: MUREAV; ISSN: 0027-5107

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB An optical biosensor was used to monitor interactions between the Escherichia coli DNA mismatch repair mol. MutS and various immobilized oligonucleotides. While associating poorly with single-stranded DNA, MutS was capable of rapid association/dissociation from homoduplex DNA. The interaction of MutS with

Serial#: 10/553,948

oligonucleotide 30-mers containing single site mismatches demonstrated that during the dissociation phase, MutS binding was greatest to a G-G mismatch, followed by G-T>A-A>C-T, A-C. Binding to A-G, T-T and C-C mispairs was marginally higher than that seen between MutS and homoduplex DNA. The ability of MutS to interact with 30-mers containing alkylated bases was also tested. While binding to O6-methyl-G-C, or to O4-methyl-T-A base pairs was similar to that of homoduplex DNA, strong binding was seen to a O6-methyl-G-T mispair. O4-methyl-T-G, however, was poorly recognized by MutS, with relative binding affinity similar to homoduplex DNA, predicting poor in vivo recognition of O4-methyl-T-G by MutS. Interestingly, MutS demonstrated a relatively high affinity for an 1,N6-etheno-A-T containing homoduplex. Thus, in allowing rapid evaluation of interactions between such mols., the biosensor will be useful to structure-function analyses.

CC 9-5 (Biochemical Methods)

IT DNA

Oligonucleotides

RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(MutS interaction with mismatch and alkylated base containing DNA mols. detected by optical biosensor)

IT 964-21-6, O6-Methyldeoxyguanosine 50591-13-4 68498-25-9,
1,N6-Ethenodeoxyadenosine

RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(MutS interaction with mismatch and alkylated base containing DNA mols. detected by optical biosensor)

IT 964-21-6, O6-Methyldeoxyguanosine

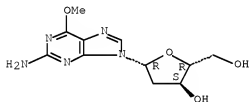
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(MutS interaction with mismatch and alkylated base containing DNA mols. detected by optical biosensor)

RN 964-21-6 HCAPLUS

CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Absolute stereochemistry.



OS.CITING REF COUNT: 22 THERE ARE 22 CAPLUS RECORDS THAT CITE THIS RECORD (22 CITINGS)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 11 OF 18 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1996:206593 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 125:11328

ORIGINAL REFERENCE NO.: 125:2485a,2488a

TITLE: N7-DNA: synthesis and base pairing of oligonucleotides containing

N7-(2-deoxy-β-D-erythro-pentofuranosyl)guanine (N7Gd)

AUTHOR(S): Seela, Frank; Leonard, Peter

Serial#: 10/553,948

CORPORATE SOURCE:

Inst. Chemie, Univ. Osnabrueck, Osnabrueck, D-49069, Germany

SOURCE:

Helvetica Chimica Acta (1996), 79(2), 477-87

PUBLISHER:

CODEN: HCACAV; ISSN: 0018-019X

DOCUMENT TYPE:

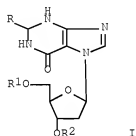
Verlag Helvetica Chimica Acta

LANGUAGE:

Journal

GI

English



- AB The synthesis of oligonucleotides containing I (R = NH₂, R₁ = R₂ = H) is described. The latter was prepared by nucleobase-anion glycosylation of 2-amino-6-methoxypurine with 2-deoxy-3,5-di-O-(4-toluoyl)-α-D- erythro-pentofuranosyl chloride followed by detoluoylation and displacement of the MeO group. Upon base protection with the Me₂NHC= residue the 4,4-dimethoxytrityl group was introduced at OH-C(5'). The phosphonate I [R = N:CNHMe₂, R₁ = CPh(4-C₆H₄OMe)₂, R₂ = PhO₂-NHET₃+] and the phosphoramidite I [R = N:CNHMe₂, R₁ = CPh(4-C₆H₄OMe)₂, R₂ = PN(CHMe₂)₂O(CH₂)₂CN] were prepared and used in solid-phase oligonucleotide synthesis. The self-complementary dodecamer d(N₇G-C)6 shows sigmoidal melting. The T_m of the duplex is 40°. This demonstrates that guanine residues linked via N(7) of purine to the phosphodiester backbone are able to undergo base pairing with cytosine.
- CC 33-9 (Carbohydrates)
- ST oligonucleotide guanine deoxypentofuranosyl prepn base pairing;
guanine deoxypentofuranosyl prepn
- IT Nucleosides, preparation
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(deoxyribo-, purine, preparation and base pairing of oligonucleotides containing (deoxypentofuranosyl)guanine)
- IT 4330-21-6 20535-83-5, 2-Amino-6-methoxypurine 67219-55-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation and base pairing of oligonucleotides containing (deoxypentofuranosyl)guanine)
- IT 159791-63-6P 177162-14-0P 177162-16-2P 177162-17-3P 177162-18-4P
177162-19-5P 177162-20-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and base pairing of oligonucleotides containing (deoxypentofuranosyl)guanine)
- IT 964-21-6P 177162-15-1P 177162-21-9P 177257-50-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and base pairing of oligonucleotides containing (deoxypentofuranosyl)guanine)
- IT 964-21-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and base pairing of oligonucleotides containing

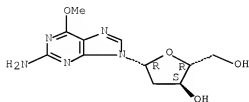
Serial#: 10/553,948

(deoxypentofuranosyl)guanine)

RN 964-21-6 HCAPLUS

CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Absolute stereochemistry.



OS.CITING REF COUNT: 14 THERE ARE 14 CAPLUS RECORDS THAT CITE THIS RECORD (14 CITINGS)

L38 ANSWER 12 OF 18 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1995:638582 HCAPLUS Full-text

DOCUMENT NUMBER: 123:83952

ORIGINAL REFERENCE NO.: 123:15045a,15048a

TITLE: 6-O-Substituted guanosine derivatives prepared by

acylation and substitution reactions

INVENTOR(S): Jones, Roger A.; Fathip, Reza; Gaffney, Barbara L.

PATENT ASSIGNEE(S): Rutgers, The State University, USA

SOURCE: U.S., 24 pp. Cont. of U.S. Ser. No. 439,616, abandoned.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

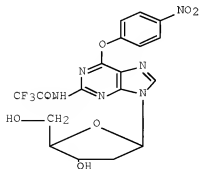
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5412088	A	19950502	US 1992-863653	19920403
PRIORITY APPLN. INFO.:			US 1992-863653	B1 19920403
			US 1989-439616	19891120

OTHER SOURCE(S): CASREACT 123:83952; MARPAT 123:83952

GI



I

AB The following species of N6-activated guanosine derivs. are disclosed: 2-N-trifluoroacetamido-6-(4-nitrophenoxy)-9-(2-deoxy- β -D-erythro- pentofuranosyl)purine (I), 2-N-trifluoroacetamido-6-pentafluorophenoxy-9-(2-deoxy- β -D-erythro-pentofuranosyl)purine, and 2-amino-6-(4-dimethylaminopyridinium)-9-(2-deoxy- β -D-erythro- pentofuranosyl)purine. These guanosine compds. are useful as precursors in the synthesis of a wide variety of antiviral and anticancer nucleosides such as 2-amino-2-deoxyadenosine or 6-thio-deoxyguanosine. Also disclosed are oligonucleotides containing the above nucleosides which are precursors to modified oligonucleotides which are useful as hybridization probes. Thus, e.g., 4 mmol deoxyguanosine was treated with 3.4 mL (24 mmol) of trifluoroacetic anhydride followed by 11.1 g (80 mmol) of 4-nitrophenol; workup afforded I in 67% yield.

IC ICM C07H019-167
ICS C07H019-173; C07H019-20; C07H021-04

INCL 536027810

CC 33-9 (Carbohydrates)

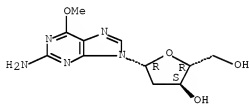
IT 789-61-7P 964-21-6P 4546-70-7P 83024-94-6P 128790-73-8P
128790-74-9P 128790-75-0P 165290-73-3P 165290-74-4P 165290-75-5P
165337-46-2P 165337-47-3P 165337-48-4P
RL: SPN (Synthetic preparation); PREP (Preparation)
(6-O-substituted guanosine derivs. prepared by acylation and substitution reactions)

IT 964-21-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(6-O-substituted guanosine derivs. prepared by acylation and substitution reactions)

RN 964-21-6 HCAPLUS

CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Absolute stereochemistry.



OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 13 OF 18 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1995:51637 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 123:9832

ORIGINAL REFERENCE NO.: 123:2067a,2070a

TITLE: Synthesis of Oligodeoxyribonucleotides Containing
Analogues of O6-Methylguanine and Reaction with
O6-Alkylguanine-DNA Alkyltransferase

AUTHOR(S): Spratt, Thomas E.; Campbell, Colin R.

CORPORATE SOURCE: Division of Chemical Carcinogenesis, American Health
Foundation, Valhalla, NY, 10595, USA

SOURCE: Biochemistry (1994), 33(37), 11364-71

CODEN: BICHAW; ISSN: 0006-2960

Serial#: 10/553,948

DOCUMENT TYPE: Journal

LANGUAGE: English

AB O6-Alkylguanine-DNA alkyltransferase (AGT) repairs the mutagenic O6-methylguanine (O6mG) lesion by transferring a Me group from the 6-position of guanine to a cysteine residue on the protein. The simplest possible mechanism is an SN2 process in which the cysteine displaces the Me group off of the guanine in a concerted reaction. To probe the interactions between the protein and guanine leaving group, oligodeoxyribonucleotide duplexes containing analogs of O6mG were synthesized and then reacted with AGT. AGT was reacted with oligonucleotide duplexes of the sequence 5'-GGCGCTXGAGGCGTG-3' in which X was O6mG or an analog in which X was paired with C. All detected reactions were demethylations of the oligodeoxyribonucleotides except for O6-methyl-3-deoxyguanine, which reacted in an unknown manner. The second-order rate consts. obtained are reported. The large decreases in rate observed for changing the oxygen at the 6-position and the ring nitrogen at the 1-position suggest that these sites are hydrogen bond acceptors and/or proton acceptors during the reaction. The potential hydrogen bond from the protein to the 1-position of O6mG as well as the increase in rate observed for O6-methylhypoxanthine suggests that the duplex opens up in order for the reaction to occur.

CC 33-9 (Carbohydrates)

Section cross-reference(s): 7, 22

IT Nucleotides, preparation

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)

(oligo-, deoxyribo-, synthesis of methylguanine analog- containing oligodeoxyribonucleotide duplexes and reaction with alkyltransferase)

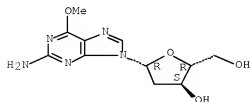
IT 964-21-6P 23526-11-6P 37109-88-9P 37113-42-1P
52192-38-8P 86392-74-7P 115945-78-3P 163882-36-8P 163882-37-9P
163882-38-0P 163882-39-1P 163882-40-4P 163882-41-5P 163882-42-6P
163882-43-7P 163882-44-8P 163882-45-9P 163882-46-0P 163882-47-1P
163882-48-2P 163882-49-3P 163882-50-6P 163882-51-7P 163882-52-8P
163882-53-9P 163882-54-0P 163882-55-1P 163882-56-2P 163882-57-3P
163882-58-4P 163882-59-5P 163882-60-8P 163882-61-9P 163882-62-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis of methylguanine analog- containing oligodeoxyribonucleotide duplexes and reaction with alkyltransferase)

IT 964-21-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis of methylguanine analog- containing oligodeoxyribonucleotide duplexes and reaction with alkyltransferase)

RN 964-21-6 HCAPLUS

CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Absolute stereochemistry.



Serial#: 10/553,948

OS.CITING REF COUNT: 32 THERE ARE 32 CAPLUS RECORDS THAT CITE THIS RECORD (32 CITINGS)

L38 ANSWER 14 OF 18 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1993:39313 HCAPLUS Full-text

DOCUMENT NUMBER: 118:39313

ORIGINAL REFERENCE NO.: 118:7183a,7186a

TITLE: 6-O-(Pentafluorophenyl)-2'-deoxyguanosine: a versatile synthon for nucleoside and oligonucleotide synthesis

AUTHOR(S): Gao, Hetian; Fathi, Reza; Gaffney, Barbara L.; Goswami, Bhaswati; Kung, Pei Pei; Rhee, Youngsook; Jin, Renzhe; Jones, Roger A.

CORPORATE SOURCE: Dep. Chem., Rutgers, State Univ. New Jersey, Piscataway, NJ, 08855, USA

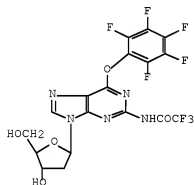
SOURCE: Journal of Organic Chemistry (1992), 57(25), 6954-9
CODEN: JOCEAH; ISSN: 0022-3263

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 118:39313

GI



I

AB Title deoxyguanosine I can be used to generate in high yield 6-O-methyl-2'-deoxyguanosine, 2,6-diamino-9-(2-deoxy-β-D-erythro- pentofuranosyl)purine, and related derivs. Further, after appropriate protection and derivatization, I can be incorporated into oligonucleotides and there used for postsynthetic oligonucleotide modification. This approach is particularly useful for preparation of oligonucleotides containing 2,6-diaminopurine residues or their 6-alkylamino derivs. In addition, reaction of I, or I-containing oligonucleotides, with 4-(dimethylamino)pyridine (DMAP) gives a fluorescent guanine-DMAP adduct.

CC 33-9 (Carbohydrates)

Section cross-reference(s): 41

IT Nucleotides, polymers

RL: SPN (Synthetic preparation); PREP (Preparation)

(oligo-, deoxyribo-, preparation and HPLC of)

IT 964-21-6P 4546-70-7P 145052-12-6P 145052-13-7P

145052-14-8P 145052-15-9P 145052-16-0P 145052-23-9P 145052-25-1P

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of)

IT 964-21-6P

RL: SPN (Synthetic preparation); PREP (Preparation)

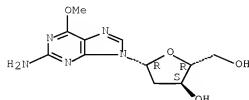
(preparation of)

Serial#: 10/553,948

RN 964-21-6 HCAPLUS

CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Absolute stereochemistry.



OS.CITING REF COUNT: 28 THERE ARE 28 CAPLUS RECORDS THAT CITE THIS RECORD (29 CITINGS)

L38 ANSWER 15 OF 18 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1992:490686 HCAPLUS Full-text

DOCUMENT NUMBER: 117:90686

ORIGINAL REFERENCE NO.: 117:15849a,15852a

TITLE: Solid-phase synthesis of oligodeoxynucleotides containing 6-O-alkylguanosines

AUTHOR(S): Roelen, H. C. P. F.; Brugghe, H. F.; Van den Elst, H.; Klein, J. C.; Van der Marel, G. A.; Van Boom, J. H.

CORPORATE SOURCE: Gorlaeus Lab., Leiden, 2300 RA, Neth.

SOURCE: Recueil des Travaux Chimiques des Pays-Bas (1992), 111(5), 227-34

CODEN: RTCPA3; ISSN: 0165-0513

DOCUMENT TYPE: Journal

LANGUAGE: English

AB High-quality oligodeoxynucleotides having an 6-O-alkyl-2'-deoxyguanosine (alkyl = Me, Et, Pr, n-hexyl) residue at a predetd. position were obtained via a solid-phase approach using the 2-cyanoethyl N,N-diisopropylphosphoramidites of 5'-O-(4,4'-dimethoxytrityl)-protected 6-O-alkyl-2'-deoxyguanosines having a free exocyclic amino group, and 5'-O-(4,4'-dimethoxytrityl) N-acyl-protected 2'-deoxynucleosides.

CC 33-9 (Carbohydrates)

IT Nucleotides, polymers

RL: RCT (Reactant); RACT (Reactant or reagent)

(oligo-, deoxyribo-, alkylguanosine-containing, solid-phase synthesis of)

IT 964-21-6P 50704-46-6P 142738-53-2P 142738-54-3P

142738-55-4P 142738-56-5P 142738-57-6P 142738-58-7P

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation and oligodeoxynucleotide synthesis with)

IT 964-21-6P

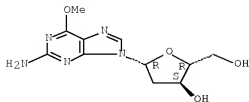
RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation and oligodeoxynucleotide synthesis with)

RN 964-21-6 HCAPLUS

CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Absolute stereochemistry.



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD
(1 CITINGS)

L38 ANSWER 16 OF 18 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1991:673086 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 115:273086

ORIGINAL REFERENCE NO.: 115:46241a,46244a

TITLE: A sectored colony assay for monitoring mutagenesis by specific carcinogen-DNA adducts in *Escherichia coli*
AUTHOR(S): Pauly, Gary T.; Hughes, Stephen H.; Moschel, Robert C.
CORPORATE SOURCE: Frederick Cancer Res. Dev. Cent., Natl. Cancer Inst., Frederick, MD, 21702, USA

SOURCE: Biochemistry (1991), 30(50), 11700-6

CODEN: BICHAW; ISSN: 0006-2960

DOCUMENT TYPE: Journal

LANGUAGE: English

AB To study the mutagenicity of various carcinogen-DNA adducts in *E. coli*, a cassette plasmid was developed that permits positioning of specific carcinogen-modified bases within the ATG initiation codon of the lacZ' α -complementation gene. Adduct-induced mutations inactivate the gene and lead to formation of blue and white sectored colonies when transformants from an α -complementing version of *E. coli* strain AB1157 are grown on media containing 5-bromo-4-chloro-3-indolyl β -D-galactoside. In the absence of mutation, blue colonies are produced. This system has been used to measure the mutagenicity of O6-methyl-, O6-ethyl-, and O6-butyl-2'-deoxyguanosine residues incorporated in place of the normal 2'-deoxyguanosine of the ATG initiation codon. Although a low percentage of sectored colonies was produced in this repair-proficient strain, pretreatment of the bacteria with N-methyl-N'-nitro-N-nitrosoguanidine to disable DNA repair led to a dose-dependent increase in the percentage of sectored colonies. This percentage increased as a function of modified guanine in the order O6-benzyl- < O6-methyl- < O6-ethyl-2'-deoxyguanosine. The only mutations detected at the site of incorporation of these O6-substituted guanines were G-to-A transitions. This sectored colony assay system permits convenient screening of large nos. of colonies and simplifies quantification of modified base-induced mutations whether they be single-base changes, frameshifts, insertions, or deletions.

CC 4-6 (Toxicology)

IT Mutagens
(deoxyguanosine derivs. in oligonucleotides as, in *Escherichia coli*)

IT *Escherichia coli*
(deoxyguanosine derivs. in oligonucleotides mutagenicity in)

IT Nucleotides, polymers
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(oligo-, mutagenicity of, in *Escherichia coli*)

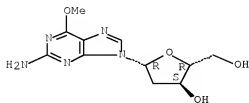
IT 961-07-9D, 2'-Deoxyguanosine, derivs. 964-21-6,
O6-Methyl-2'-deoxyguanosine 50704-46-6 129732-90-7
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(mutagenicity of, in *Escherichia coli*, DNA adducts in relation to)

IT 964-21-6, O6-Methyl-2'-deoxyguanosine

Serial#: 10/553,948

RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(mutagenicity of, in Escherichia coli, DNA adducts in relation to)
RN 964-21-6 HCAPLUS
CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Absolute stereochemistry.



OS.CITING REF COUNT: 10 THERE ARE 10 CAPLUS RECORDS THAT CITE THIS RECORD (10 CITINGS)

L38 ANSWER 17 OF 18 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1989:130229 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 110:130229

ORIGINAL REFERENCE NO.: 110:21387a,21390a

TITLE: Formation of O6-methyldeoxyguanosine at specific sites in a synthetic oligonucleotide designed to resemble a known mutagenic hotspot

AUTHOR(S): Richardson, Frank C.; Boucheron, Joyce A.; Skopek, Thomas R.; Swenberg, James A.

CORPORATE SOURCE: Dep. Biochem. Toxicol., Chem. Ind. Inst. Toxicol., Research Triangle Park, NC, 27709, USA

SOURCE: Journal of Biological Chemistry (1989), 264(2), 838-41
CODEN: JBCHA3; ISSN: 0021-9258

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Four synthetic oligodeoxyribonucleotides of the sequence 5'-CCG1TG2G3G4ATATGGGCTG-3' were constructed with a 1',2'-[3H]deoxyguanosine located at one of the four sites indicated (1, 2, 3, or 4). This sequence was derived from a region of the Escherichia coli xanthine-guanine phosphoribosyltransferase gene where position 4 is a site frequently mutated by N-methyl-N'-nitrosoourea as compared to sites 1-3. These four oligomers were alkylated in both single- and double-stranded form with N-methyl-N'-nitrosoourea, and the relative amount of O6-methyldeoxyguanosine (O6-MedGuo) formed at each position was quantitated. Up to a 5-6-fold greater formation of O6-MedGuo was observed at positions 3 and 4 as compared to positions 1 and 2. This uneven distribution was only observed in oligomers in the double-stranded form, suggesting that secondary structure was an important determinant in generating the uneven distribution of O6-MedGuo. Comparisons between the extent of O6-MedGuo formation and mutation frequency at the four positions suggest that a difference in the formation of promutagenic adducts at specific sites is just one of the factors involved in the generation of mutagenic hot-spots. The novel method developed was applied to the study of formation of O6-MedGuo at specific sites; however, it should be suitable for studying the formation and repair of DNA adducts generated by a variety of chems. in a wide variety of DNA sequences.

CC 4-6 (Toxicology)

Section cross-reference(s): 26

ST methylnitrosoourea methyldeoxyguanosine formation oligonucleotide

IT Conformation and Conformers

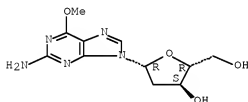
Mutation

(methylnitrosoourea methylation of oligonucleotides in

Serial#: 10/553,948

relation to)
IT Methylation
(oligonucleotides, by methylnitrosourea, methyldeoxyguanosine
formation in relation to)
IT Nucleotides, polymers
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(oligo-, preparation and methylnitrosourea methylation of)
IT 578-76-7, N7-Methylguanine 964-21-6, O6-Methyldeoxyguanosine
20535-83-5, O6-Methylguanine
RL: FORM (Formation, nonpreparative)
(formation of, in oligonucleotide after methylnitrosourea
methylation)
IT 3040-49-1, N-Methyl-N'-nitrosourea
RL: RCT (Reactant); RACT (Reactant or reagent)
(oligonucleotide methylation by, methyldeoxyguanosine
formation in relation to)
IT 964-21-6, O6-Methyldeoxyguanosine
RL: FORM (Formation, nonpreparative)
(formation of, in oligonucleotide after methylnitrosourea
methylation)
RN 964-21-6 HCAPLUS
CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Absolute stereochemistry.



OS.CITING REF COUNT: 12 THERE ARE 12 CAPLUS RECORDS THAT CITE THIS
RECORD (12 CITINGS)

L38 ANSWER 18 OF 18 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1982:85920 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 96:85920

ORIGINAL REFERENCE NO.: 96:14123a,14126a

TITLE: Synthesis and characterization of an
oligonucleotide containing a
carcinogen-modified base: O6-methylguanine

AUTHOR(S): Fowler, Kerry W.; Buechi, George; Essigmann, John M.
CORPORATE SOURCE: Dep. Chem., Massachusetts Inst. Technol., Cambridge,
MA, 02139, USA

SOURCE: Journal of the American Chemical Society (1982),
104(4), 1050-4

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The synthesis and characterization of the oligomer 5'-dTp(03-Me)GpCpA-3' by the
modified triester procedure is described, representing the preparation of a DNA
fragment containing a base specifically covalently modified by a carcinogen. Using
genetic engineering techniques, this tetramer will be substituted for a 5'-TpGpCpA-
3' portion of the DNA of bacterial virus .vphi.X174 in order to study the effect on

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replication of a well-characterized chemical modification of DNA at an exactly known point. The presence of O6-methylguanine in the oligomer inhibits the enzyme activities of snake venom phosphodiesterase and endonuclease P1.

CC 33-9 (Carbohydrates)

ST oligonucleotide carcinogen modified base; nucleotide oligo carcinogen modified base; methylguanine tetranucleotide

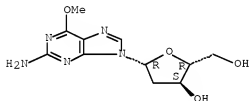
IT 964-21-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and benzoylation of)

IT 964-21-6E
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and benzoylation of)

RN 964-21-6 HCAPLUS

CN Guanosine, 2'-deoxy-6-O-methyl- (CA INDEX NAME)

Absolute stereochemistry.



OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD
(2 CITINGS)

INVENTOR SEARCH

=> FILE HCAPLUS

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USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Feb 2010

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L24	4	SEA	FILE=HCAPLUS	SPE=ON	ABB=ON	PLU=ON	L21 AND L22

=> D L24 IBIB ABS HITSTR 1-4

L24 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2006:519843 HCAPLUS Full-text
DOCUMENT NUMBER: 145:416417
TITLE: Potent protective cellular immune responses generated by a DNA vaccine encoding HSV-2 ICP27 and the E. coli heat labile enterotoxin
AUTHOR(S): Haynes, Joel P.; Arrington, Joshua
; Dong, Lichun; Braun, Ralph P.; Payne, London G.
CORPORATE SOURCE: PowderJect Vaccines Inc., Middleton, WI, USA
SOURCE: Vaccine (2006), 24(23), 5016-5026
CODEN: VACCDE; ISSN: 0264-410X
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A mouse model was employed to evaluate protective cellular immune responses induced

Serial#: 10/553,948

by an immediate early antigen of HSV-2. Particle-mediated DNA vaccination of mice with a DNA plasmid-encoding ICP27 resulted in the induction of ICP27-specific IFN- γ and TNF- α production in Balb/c mice, but little protection to intranasal challenge with wild type HSV-2. However, when the DNA vaccine was supplemented with as little as 50 ng of a vector encoding the A and B subunits of the Escherichia coli heat labile enterotoxin (LT), animals were profoundly protected from morbidity and mortality. The ICP27 + LT-mediated protection was correlated with a large increase in ICP27-specific IFN- γ and TNF- α production but cytokine-specific monoclonal antibody treatment at the time of challenge showed that protection was mediated predominantly by IFN- γ . Furthermore, depletion of T cell subsets prior to infectious challenge demonstrated that removal of either CD8+ or CD4+ T cells impaired protection with CD8+ T cells appearing to play a direct effector role. These data demonstrate that augmented cellular immune responses resulting from LT vector plus antigen vector administration to the skin are biol. significant, leading to enhanced protection against mucosal pathogenic challenge. OS.CITING REF COUNT: 6
THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD

(6 CITINGS)

REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2010 ACS ON STN

ACCESSION NUMBER: 2003:678494 HCAPLUS Full-text

DOCUMENT NUMBER: 139:212866

TITLE: Recombinant nucleic acids encoding bacterial ADP-ribosylating exotoxin as adjuvant vectors for vaccine delivery

INVENTOR(S): Haynes, Joel F.; Arrington, Joshua

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 72 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20030162733	A1	20030828	US 2001-993307	20011126
US 20060019921	A1	20060126	US 2005-179798	20050713
PRIORITY APPLN. INFO.:			US 2000-25381P	P 20001127
			US 2001-993307	B1 20011126

AB Recombinant nucleic acid mols. are described. The mols. have two nucleic acid sequences, wherein the first nucleic acid sequence is a truncated A subunit coding region obtained or derived from a bacterial ADP-ribosylating exotoxin (CT-A), and the second nucleic acid sequence is a truncated B subunit coding region (CT-B). The bacterial ADP-ribosylating exotoxin is a cholera toxin or Escherichia coli heat labile enterotoxin. Vectors and compns. containing these mols. are also described. Methods for enhancing an immune response against an antigen of interest using these recombinant nucleic acid mols. and compns. are also described. Such adjuvant vectors encoding CT-A/CT-B and HBsAg or HIV-1 gp120 or HBsAg/HBcAg were prepared as vaccines with enhanced humoral and cellular immune responses.

L24 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2010 ACS ON STN

ACCESSION NUMBER: 2003:42130 HCAPLUS Full-text

DOCUMENT NUMBER: 138:105624

TITLE: Truncated genes for exotoxins for use as nucleic acid adjuvants in vector vaccines

INVENTOR(S): Haynes, Joel F.; Arrington, Joshua E.

PATENT ASSIGNEE(S): Powderject Vaccines, Inc., USA

Serial#: 10/553,948

SOURCE:

PCT Int. Appl., 143 pp.

CODEN: PIXXD2

DOCUMENT TYPE:

Patent

LANGUAGE:

English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003004055	A2	20030116	WO 2001-US43151	20011126
WO 2003004055	A3	20031120		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BE, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
CA 2429708	A1	20030116	CA 2001-2429708	20011126
AU 2001297988	A1	20030121	AU 2001-297988	20011126
AU 2001297988	B2	20061026		
EP 1379273	A2	20040114	EP 2001-274277	20011126
EP 1379273	B1	20090916		
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
CN 1537013	A	20041013	CN 2001-819570	20011126
CN 1317034	C	20070523		
JP 2004536107	T	20041202	JP 2003-510065	20011126
JP 4221289	B2	20090212		
BR 2001015646	A	20051213	BR 2001-15646	20011126
NZ 526175	A	20060127	NZ 2001-526175	20011126
AT 442858	T	20091015	AT 2001-274277	20011126
PT 1379273	E	20091127	PT 2001-274277	20011126
ES 2332261	T3	20100201	ES 2001-274277	20011126
IN 2003CN00798	A	20050415	IN 2003-CN798	20030522
IN 229152	A1	20090320		
MX 2003004638	A	20040420	MX 2003-4638	20030526
PRIORITY APPLN. INFO.:			US 2000-724315	A 20001127
			WO 2001-US43151	W 20011126

AB Vector vaccines including genes for ADP-ribosylating toxins that act as powerful adjuvants are described. The vector carries an antigen gene and the genes for a truncated A subunit derived from a bacterial ADP-ribosylating exotoxin, and the second nucleic acid sequence is a truncated B subunit coding region. The genes are expressible, but the gene products are not toxic. Toxicity is eliminated from the A subunits by deletion of the C-terminal KDEL or RDEL motif. Vectors and compns. containing these mols. are also described. Methods for enhancing an immune response against an antigen of interest using these recombinant nucleic acid mols. and compns. are also described. Adjuvant activity of cholera toxin and Escherichia coli heat-labile enterotoxin genes is demonstrated in mice.

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (7 CITINGS)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2010 ACS ON STN

ACCESSION NUMBER: 2002:295134 HCAPLUS Full-text

DOCUMENT NUMBER: 136:384628

TITLE: Plasmid vectors encoding cholera toxin or the

Serial#: 10/553,948

AUTHOR(S): Arrington, Joshua; Braun, Ralph P.; Dong, Lichun; Fuller, Deborah H.; Macklin, Michael D.; Umlauf, Scott W.; Wagner, Sarah J.; Wu, Mary S.; Payne, Lendon G.; Haynes, Joel P.

CORPORATE SOURCE: PowderJect Vaccines, Inc., Madison, WI, 53711, USA

SOURCE: Journal of Virology (2002), 76(9), 4536-4546
CODEN: JOVIAM; ISSN: 0022-538X

PUBLISHER: American Society for Microbiology

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Two plasmid vectors encoding the A and B subunits of cholera toxin (CT) and two addnl. vectors encoding the A and B subunits of the Escherichia coli heat-labile enterotoxin (LT) were evaluated for their ability to serve as genetic adjuvants for particle-mediated DNA vaccines administered to the epidermis of laboratory animals. Both the CT and the LT vectors strongly augmented Th1 cytokine responses (gamma interferon [IFN-γ]) to multiple viral antigens when codelivered with DNA vaccines. In addition, Th2 cytokine responses (interleukin 4 [IL-4]) were also augmented by both sets of vectors, with the effects of the LT vectors on IL-4 responses being more antigen dependent. The activities of both sets of vectors on antibody responses were antigen dependent and ranged from no effect to sharp redns. in the IgG1-to-IgG2a ratios. Overall, the LT vectors exhibited stronger adjuvant effects in terms of T-cell responses than did the CT vectors, and this was correlated with the induction of greater levels of cAMP by the LT vectors following vector transfection into cultured cells. The adjuvant effects observed in vivo were due to the biol. effects of the encoded proteins and not due to CpG motifs in the bacterial genes. Interestingly, the individual LT A and B subunit vectors exhibited partial adjuvant activity that was strongly influenced by the presence or absence of signal peptide coding sequences directing the encoded subunit to either intracellular or extracellular locations. Particle-mediated delivery of either the CT or LT adjuvant vectors in rodents and domestic pigs was well tolerated, suggesting that bacterial toxin-based genetic adjuvants may be a safe and effective strategy to enhance the potency of both prophylactic and therapeutic DNA vaccines for the induction of strong cellular immunity.

OS.CITING REF COUNT: 44 THERE ARE 44 CAPLUS RECORDS THAT CITE THIS RECORD (44 CITINGS)

REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

SEARCH HISTORY

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        -2/BI OR 586482-03-3/BI OR 586485-90-7/BI OR 586485-91-8/BI OR
        586485-92-9/BI OR 586485-93-0/BI OR 586485-94-1/BI OR 586487-44
        -7/BI OR 586487-45-8/BI OR 586487-46-9/BI OR 586487-47-0/BI OR
        586487-48-1/BI OR 586487-49-2/BI OR 586487-50-5/BI OR 586487-51
        -6/BI OR 586487-52-7/BI OR 586487-53-8/BI OR 586487-54-9/BI OR
        586487-55-0/BI OR 586487-56-1/BI OR 586487-57-2/BI OR 586487-58
        -3/BI OR 586487-59-4/BI OR 7440-57-5/BI)
L3      STRUCTURE UPLOADED
        D
L4      0 SEA SSS SAM L3
L5      0 SEA SSS FUL L3
L6      535 SEA SPE=ON ABB=ON PLU=ON C11H15N5O4/MF
L7      20 SEA SPE=ON ABB=ON PLU=ON L6 AND GUANOSINE/BI
        D SCAN
L8      STRUCTURE UPLOADED
        D
L9      50 SEA SSS SAM L8
L10     67307 SEA SSS FUL L8
L11     STRUCTURE UPLOADED
        D
L12     50 SEA SUB=L10 SSS SAM L11
L13     STRUCTURE UPLOADED
        D
L14     9 SEA SUB=L10 SSS SAM L13
L15     STRUCTURE UPLOADED
        D
L16     1 SEA SUB=L10 SSS SAM L15
        D SCAN
L17     24 SEA SUB=L10 SSS FUL L15
        D SCAN
L18     0 SEA SPE=ON ABB=ON PLU=ON L2 AND L10
        D SCAN L2
        E O6-MEDG/CN
L19     1 SEA SPE=ON ABB=ON PLU=ON "O6-METHYL-2'-DEOXYGUANOSINE"/CN
        D IDE CAN

FILE 'HCAPLUS' ENTERED AT 17:25:39 ON 19 APR 2010
L20     8 SEA SPE=ON ABB=ON PLU=ON L17
L21     592 SEA SPE=ON ABB=ON PLU=ON HAYNES J7/AU
L22     225 SEA SPE=ON ABB=ON PLU=ON ARRINGTON J7/AU
L23     0 SEA SPE=ON ABB=ON PLU=ON L20 AND (L21 OR L22)
L24     4 SEA SPE=ON ABB=ON PLU=ON L21 AND L22

FILE 'WPIX' ENTERED AT 17:27:37 ON 19 APR 2010
L25     0 SEA SSS SAM L15
L26     0 SEA SSS FUL L15

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FILE 'BEILSTEIN' ENTERED AT 17:28:04 ON 19 APR 2010
L27      0 SEA SPE=ON ABB=ON PLU=ON L17
L28      3 SEA SSS SAM L15
L29      24 SEA SSS FUL L15
L30      24 SEA SPE=ON ABB=ON PLU=ON L29 NOT L17
          D STR
L31      0 SEA SUB=L29 SSS SAM L3
L32      0 SEA SUB=L29 SSS FUL L3

FILE 'REGISTRY' ENTERED AT 17:33:28 ON 19 APR 2010

FILE 'HCAPLUS' ENTERED AT 17:33:32 ON 19 APR 2010
          D STAT QUE L20
          D L20 IBIB ABS HITSTR 1-8

FILE 'HCAPLUS' ENTERED AT 17:33:56 ON 19 APR 2010
          D STAT QUE L24
          D L24 IBIB ABS HITSTR 1-4

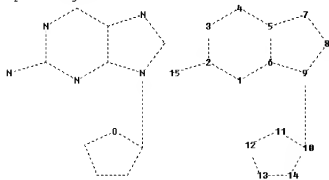
FILE 'REGISTRY' ENTERED AT 17:35:03 ON 19 APR 2010
          D STAT QUE L19
          D IDE CAN L19

FILE 'HCAPLUS' ENTERED AT 17:35:39 ON 19 APR 2010
L33      152 SEA SPE=ON ABB=ON PLU=ON L19
L34      33522 SEA SPE=ON ABB=ON PLU=ON IMMUNOSTIMULATION+PFT/CT OR
          IMMUNOSTIM?/BI
L35      53933 SEA SPE=ON ABB=ON PLU=ON ANTISENS?/CT OR (ANTI(W)SENS? OR
          ANTISENS?)/BI
L36      152611 SEA SPE=ON ABB=ON PLU=ON OLIGONUCLEOTIDES+OLD,NT,PFT/CT OR
          OLIGONUCLEO?/BI
L37      18678 SEA SPE=ON ABB=ON PLU=ON (CPG? OR C(W)P(W)G?)/BI
L38      18 SEA SPE=ON ABB=ON PLU=ON L33 AND ((L34 OR L35 OR L36 OR
          L37))

FILE 'HCAPLUS' ENTERED AT 17:44:35 ON 19 APR 2010
          D STAT QUE L38
          D L38 IBIB ABS HITIND HITSTR 1-18
```

=>

Uploading LL8.str



chain nodes :

15

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14

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chain bonds :

2-15 9-10

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 8-9 10-11 10-14 11-12 12-13 13-14

exact/norm bonds :

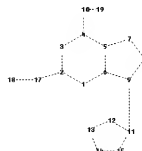
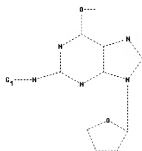
1-2 1-6 2-3 2-15 3-4 4-5 5-6 5-7 6-9 7-8 8-9 9-10 10-11 10-14 11-12
12-13 13-14

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom

11:Atom 12:Atom 13:Atom 14:Atom 15:CLASS

Uploading LL15.str



chain nodes :

10 17 18 19

ring nodes :

1 2 3 4 5 6 7 8 9 11 12 13 14 15

chain bonds :

2-17 4-10 9-11 10-19 17-18

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 8-9 11-12 11-15 12-13 13-14 14-15

exact/norm bonds :

1-2 1-6 2-3 2-17 3-4 4-5 4-10 5-6 5-7 6-9 7-8 8-9 9-11 10-19 11-12
11-15 12-13 13-14 14-15 17-18

G1:n-Bu, i-Bu, s-Bu, t-Bu

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:CLASS

11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 17:CLASS 18:CLASS 19:CLASS